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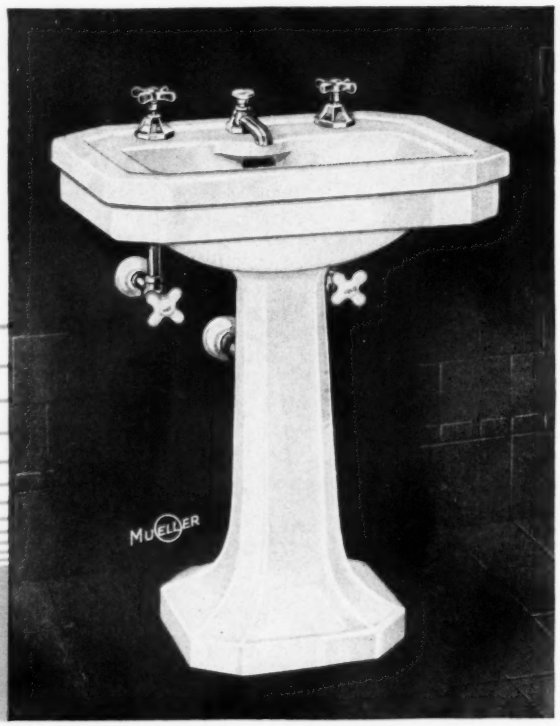
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Guess—
and you lose money in estimating

APRIL 18,
1931



Minus Flourishes and Heliotrope..

We've tried to steer clear of all doodads and other deplorable embellishments in the designing and manufacture of the MUELLER Lavatory shown above. We like to believe that this simple yet elegant type of lavatory has a very definite place in the well-ordered home. Should you desire further information on this product—the "Decatur DeLuxe"—the MUELLER Company will consider it a privilege to send it to you upon request.

MUELLER Co. (Established 1857) *Factory:* Decatur, Illinois. *Branches:* New York, Dallas, Atlanta, Los Angeles, San Francisco, Chicago. *Canadian Factory:* MUELLER, Limited, Sarnia.

MUELLER

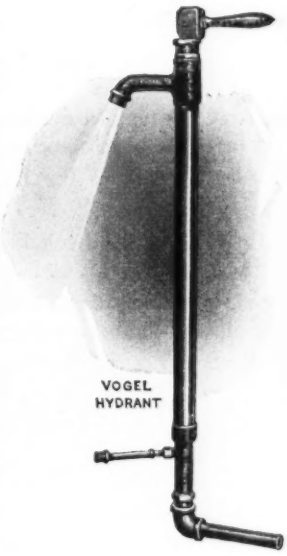
(Trade-mark Reg. U. S. Pat. Office)

THIS HAS BEEN GOING ON FOR YEARS AND YEARS

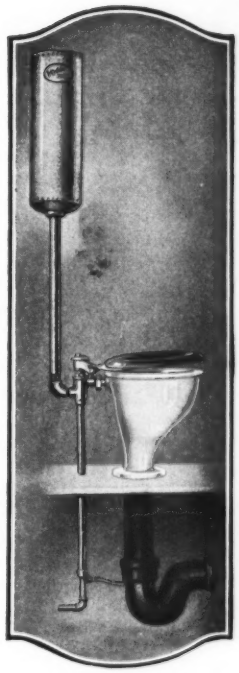
A cash profit and a satisfied customer with every installation of VOGEL PATENTED Frost-Proof Closets or Hydrants . . .

You are in business to make a profit and give your customers satisfaction. The surest way to do it is by installing VOGEL Frost-Proofs. You make your profit, and give your customer an installation that lasts for years and years, without even a minor repair.

Now is the time! Frost-proof business really opens up in the Spring. Send out folders and blotters to your customers. We supply these, imprinted with your name and address. *But do it now, because this is the time.*



Vogel Frost-Proof Hydrant



Number One Vogel Frost-Proof Closet

Simple in operation. Sturdy in construction. Half a million in operation.

THE END OF A HARD WINTER

Coldie and Frostie
Have built up a "rep"
Because they have always
Had plenty of pep.

They make it their business
To wander around
And try to crack Vogels
Wherever they're found.

Now if there's anything tougher
We'd like to be told
When cracking a Vogel
A new one or old

At zero or less
They still work with ease
A Vogel won't crack
And it never will freeze.

So don't be surprised
If the Twins look depressed
After trying all winter
They sure need a rest.

See inside back page for VOGEL PATENTED advertisement on No. 10 and 10-A Closet Combinations

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* Products

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 135, No. 2 | April 18, 1931 | Whole No. 1941

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Member of Audit Bureau of Circulations.

AN ARM THAT CAN BE SWUNG

around the overflow pipe to any desired angle — makes this

Overflow Tube and TWO PIECE ADJUSTABLE GUIDE ARM

the most convenient of any

a STOKES Hard Rubber Product

Look for the

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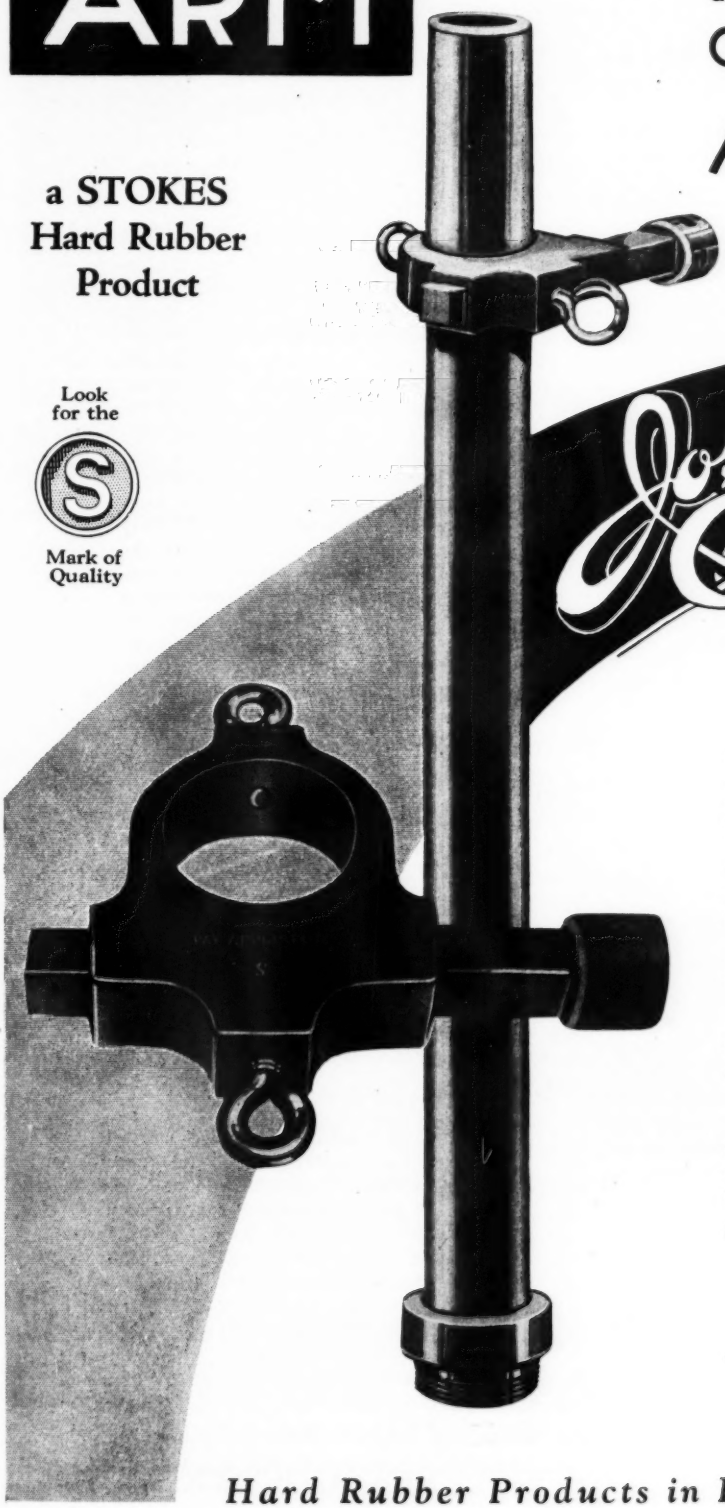
Mark of Quality



Jos. Stokes RUBBER CO.

Trenton, N. J.

Clinch your business by fittings which are the last word in design and operation. This Hard Rubber Overflow Tube is equipped with a two piece Adjustable Flush Guide Arm, which has the patented feature of being adjustable for the float valve in every way, from $1\frac{5}{16}$" to $2\frac{3}{4}$". No other type can be adjusted to such a wide range.

This Guide Arm can be swung around the overflow pipe to any desired angle.

Hard Rubber Fittings by Stokes are attracting greater attention in the plumbing industry than ever before. It will pay you to investigate.

Write for prices and samples

JOS. STOKES RUBBER CO.
Trenton, N. J.
Canadian Plant, Welland, Ontario

Hard Rubber Products in Every Conceivable Form

Between Ourselves

EACH day's mail contains a flock of letters from our readers requesting information on one thing or another. Proof that the heating contractor is getting more and more into the air conditioning field is found in the increasing number of requests for information on air conditioning equipment and for help in solving installation problems.

Your Editor

IF you have your eye on a large hotel job you'll want to study carefully the article in this issue describing the plumbing installation in the new Waldorf-Astoria hotel in New York City. And even though you are not contemplating such a job you should read the article, for it contains new ideas in the installation of a plumbing system that can be applied to other jobs as well. The designers of this system have made an attempt to improve on our standards of design, and the article, "Modern Construction Makes for New Plumbing Standards," describes in an interesting way just how this was done.

THE "Plumbing and Heating Merchandising" section this time features a review of what various plumbing and heating contractors have been doing to sell the farmer. The farm market is a big one, but its needs must be approached differently than others. Consequently, the methods pursued by those who have successfully sold plumbing and heating equipment to the farmer should be studied by those who are contemplating getting into this field or who so far have found it difficult to sell.

JUST the other day it was announced that one of Chicago's large hotels is contemplating the construction of a new building "that will be modern in every respect." This means for one thing, according to the announcement, that every room in the new building will be air conditioned. It is pointed out that this will be the first completely air conditioned hotel in the world. The management has taken this step because it finds that the public is coming to the point where it will demand this service. As "Your Editor" remarks above, each day more and more heating contractors are turning to air conditioning work. It is a tremendous field with an unlimited future and so far only the surface has been scratched. "How Much Water Will Air Drink?" is the title of an article in this issue designed to give the contractor helpful information on the subject of air conditioning. The author, Ara Marcus Daniels, goes into the question of how much moisture is contained in the air under various conditions. You will find the tables that he has compiled useful in your work.

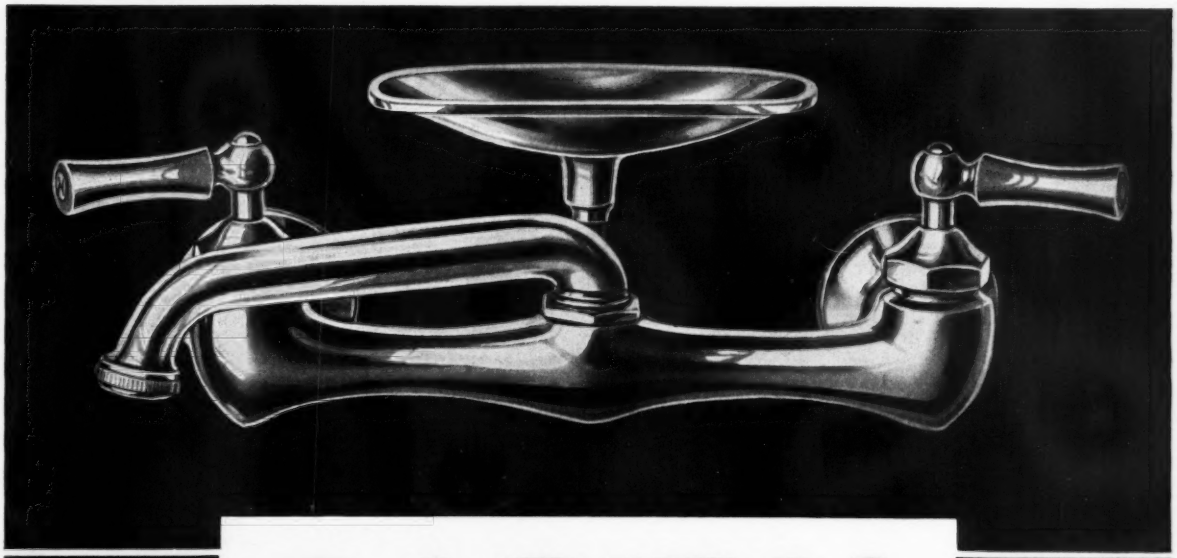
"I have been a reader of DOMESTIC ENGINEERING *for a number of years and could not get along without it."—Edward P. Siegert, River Edge, N. J.*

"GUESS—and You Lose Money in Estimating" is the title of an article by W. W. Hughes, which appears on Page 55 of this issue. Estimating, without question, is one of the most important phases of the plumbing and heating contracting business. Many a contractor has put himself in the hole because of carelessness in making estimates or simply because of a lack of knowledge of the subject. In these days of keen competition it is absolutely necessary that estimates be compiled with the greatest accuracy. Whether a contractor makes a profit or loses money on a job is dependent to a great extent upon the accuracy of his figuring when estimating the cost of the project. Gambling in estimating costs never brings business success.

"RATING Stoker Fired Boilers" is the title of an article in this issue that contains no end of valuable information for the heating contractor who is engaged in the installation of stokers in boilers and heating systems that were originally designed for hand firing. This subject was discussed recently at a joint meeting of boiler manufacturers and the board of directors of the Heating and Piping Contractors National Association. The purpose of the conference was to further the correct application and installation of stokers. A part of the discussion engaged in at this conference is contained in this article.

IN the next issue Earl Brown will tell how two heating trouble jobs were corrected with bleeder connections. He will tell how to separate the water from the steam where there is only moderate foaming in boilers so that the plant may be operated satisfactorily until the boiler becomes very dirty and foams excessively. This practical article points the way to lengthening the periods between boiler cleanings.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.



CAPITOL 910 SINK FIXTURE

For homes where only the best will do, or where the housewife takes a particular pride in dressing up her kitchen, this Capitol Sink Fixture is, we believe, the handsomest and finest-built fixture anywhere obtainable.

Chrome-plated throughout, the soap dish and handles are also of metal. Or, at your option, china soap dish and china handles can be furnished.

Eight-inch centers with either female eccentric or male adjustable couplings. Especially suited to the new, low-backed sinks.

Made in plants where precision workmanship is the only kind tolerated, this fixture is as finely made as the most modern industrial methods enable. It is an aristocrat in its field.

The better plumbing supply houses throughout the country display and furnish Capitol fixtures.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

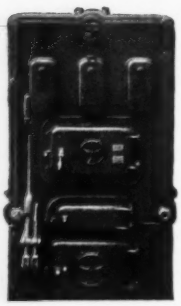
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

Burnham Boilers

Rosseter Gardens Apartments,
Russian Hill,
San Francisco, Cal.
Quandt & Bos, Architects.
George N. Zaro,
Heating Contractor

Burnham High Pressure Boiler, for hot water supply, has the famous Burnham long fire travel that makes a short fuel bill. It may be regulated to keep a large tank at any desired temperature, on a minimum of fuel.



Here Burnham High Pressure Boiler Gives Unlimited Hot Water Supply

IN residential hotels such as this there is constant demand for piping hot water. Morning, noon and night.

The reason the Burnham High Pressure Boiler installed on this job, gives almost instant hot water supply service, is because of its multiplied heat absorbing surfaces. Add to them the outstandingly long fire travel and you have an equivalent to the instantaneous gas heaters with their nest of coiled copper pipe. Not the least alike in construction or design mind you. But practically as flexible and having an instantaneous equivalent.

Hot water supply Burnhams for every need from a 40 gallon household tank to one of 3800 gallons. Glad to send you all the facts about hot water supply installations, and materials for putting them in.

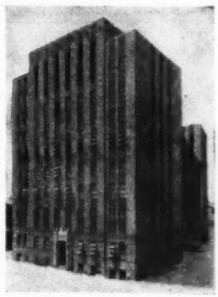
Burnham Boiler Corporation

IRVINGTON NEW YORK

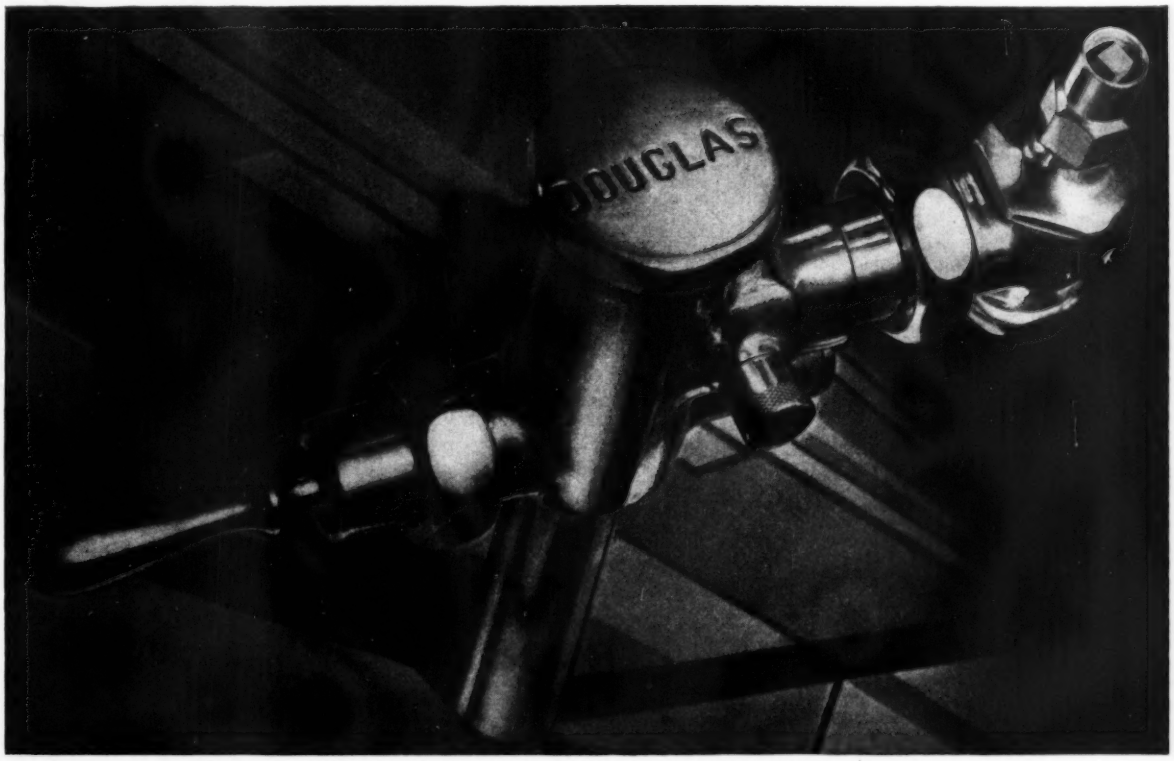
Representatives in all principal cities of the United States and Canada

A MODERN UNIVERSITY BUILDING WHERE SOLID NICKEL SILVER PLUMBING FIXTURES WILL . . .

"look better longer"



Hutchison Memorial building, Tulane University, New Orleans, La. Architects: Favrot and Livaudais, New Orleans, La. Plumbers: Mayer Godchaux Co. Inc., New Orleans, La. Solid Nickel Silver plumbing fixtures by JOHN DOUGLAS CO., Cincinnati, O.



For service that places the severest test on sanitary fixtures... where ammonia and chlorine fumes from urinals and toilet bowls penetrate coatings and expose corrodible base metals... that's where the best architectural opinion favors solid Nickel Silver. * * * Plumbing fixtures of solid Nickel Silver not only resist the corrosive action of gases and acids, but when they are made of a solid white alloy of Nickel, no unsightly spots appear where the surface is ruptured. Solid Nickel Silver fixtures are easily cleaned. They have a degree of hardness and toughness that is comparable to tough bronze, and so assure lifetime service, particularly in valve seats. * * * For modern sanitary fixtures that must "look ... and wear... better longer", specify Solid Nickel Silver.

THE INTERNATIONAL NICKEL COMPANY, INC.

Miners, refiners and rollers of Nickel... Sole producers of Monel Metal

67 Wall Street, New York, N. Y.

INCO NICKEL

SOLID Nickel SILVER

Sanitation is a fact not a promise in this installation

When you recommend a closet installation on a big job, you can be prepared to *prove* that its maintenance cost is low, that repairs can be easily made, that it is truly sanitary.

In the Crane Expedio closet with a foot-operated water controlled flushing valve these factors are present not as glittering generalities but as actual points:

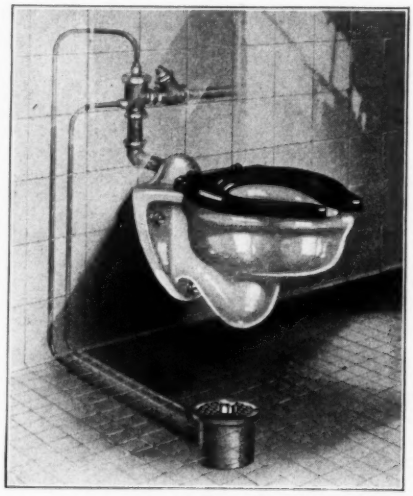
1 *Health protection*—No possibility of infection, as the hands are free from contact with the fixture.

2 *Convenience*—Convenient to operate; step on the button and the flush is accomplished.

3 *Accessibility*—If a leak occurs it is not necessary to tear out floor as the flush valve is concealed in a utility corridor.

4 *Maintenance*—The main valve is in a utility corridor and is easily accessible for adjustment. Auxiliary valve and connections are located in a water-tight cast iron box built into the floor and can be removed or replaced without disturbing floor.

5 *Sanitation*—Exposed parts are reduced to a minimum as push button is the only exposed part.



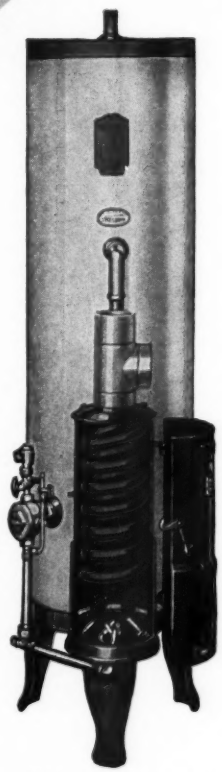
C-10285-A Crane Expedio *closet with water controlled, foot operated flushing valve.*

6 *Application*—Especially recommended for use in public and semi-public buildings such as railway stations, office buildings, schools, hospitals, and factories.

In the complete Crane line of plumbing and heating are many materials which incorporate new improvements in sanitation and introduce worth while economies. Visit the Crane Exhibit Rooms and post yourself on them; or write Crane Co. for full information.

Valves CRANE *Fittings*

CRANE CO., GENERAL OFFICES: 836 SO. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in Two Hundred Cities



No. 20SA Hotstream Automatic Storage Heater, Side Arm Type, List Price $66.00 complete

Hotstream Automatic Storage Heaters ALONE Can Give You An Exceptional Year

We mean just that. Not just an average amount of profits—not just an ordinary turnover—but a sales volume really exceptional.

Any man who will investigate Hotstream Automatic Storage Heaters can see their real superiority, both from the standpoint of design and quality construction, and also from the standpoint of customer appeal. The rapidly increasing demand for Hotstream Automatic Storage Heaters proves beyond question of a doubt that they are the heaters the people want and that they give you the opportunity to tuck a nice profit in your pocket on each sale.

There is a Hotstream Automatic to Meet Every Need

From the super quality "SA" line of side arm heaters to the popular fast selling Dixie, there is a size and a style to meet every demand. Only in Hotstream can you get and can you offer to your customers the value and the service so vital in building a successful business.

Hotstream profits are generous—Hotstream quality is real—Hotstream dealer co-operation is genuine. Get the full story. Write today to

Dixie Automatic Storage Heater, "Internal" Type. Made in 3 sizes, 20, 30 and 40 gallons. List Prices—$55.00, $70.00 and $85.00

THE HOTSTREAM HEATER CO.
"Makers of Heaters That Heat"
CLEVELAND, OHIO

HOTSTREAM AUTOMATIC STORAGE HEATERS

The Standard of Comparison

DURO DEEP WELL

Cross-section of the famous
DURO DEEP WELL PUMP

The American Public finds in DURO DEEP WELL PUMPS the Permanence and . . . . . Outstanding Value it demands

THE DURO DEEP WELL PUMP is manufactured in two styles—the 900 and the 3000. The 900 is produced in sixteen sizes ranging from 165 to 400 gallons per hour. The 3000 is produced in 30 sizes ranging from 233 to 2100 gallons per hour.

OUTSTANDING FEATURES OF DURO HEAVY DUTY DEEP WELL PUMPS

- Heavy and rugged construction
- Machine cut gears running in oil bath
- Roller bearings
- Multiple V Belt Drive
- Self-oiling crosshead
- Double check valves in base
- Complete and ready to install
- Undivided Responsibility

THE DURO COMPANY · · · DAYTON, OHIO

Write for Catalog.— Water Softeners, Water Systems, Filters, Cellar Drainers, Motors . . . Sales Offices in Principal Cities.

Why NO. 2 HOFFMAN VACUUM VALVES *do not hiss or spit*

Why risk customers' dissatisfaction and unprofitable service calls by specifying vacuum valves that you cannot guarantee against spitting, hissing and leaking. Especially when there is a valve so constructed that these annoyances are impossible — No. 2 Hoffman Vacuum Valve.

In addition to the exclusive *double air-lock*, Hoffman Valves incorporate another patented feature — *separate channels for air and water.* These insure quick, noiseless venting of air, and positively prevent water leakage through the vent port.

How these channels (found only on Hoffman Valves) work is shown by the following simple illustrations:

No. 1—*If for any reason water completely fills a No. 2 Hoffman Vacuum Valve, the float rises and closes the port. The valve is now a sealed chamber which air must enter before water can run out.*

No. 2—*Air starts to enter through opening O, and water starts to run out of siphon. But note the difference; instead of bubbling through water as in other valves, the air is compelled to move through special channels, pushing the water ahead of it until these channels are free of water.*

No. 3—*Air is collecting at top of valve and an equal amount of water has run out. Notice particularly that the port remains closed until the air channels are completely cleared of water.*

No. 4—*Enough water has run out to permit the float to drop and open the port. But now the outlets of the air channels are above the water line in the valve. There is no water in the path of the air. No matter how forcefully air may be driven into the valve, it cannot blow water out of the open port.*

The snap action of the float diaphragm insures a wide-open or tightly closed port—the valve will not close before venting is complete. And the perfect siphon provides for quick drainage.

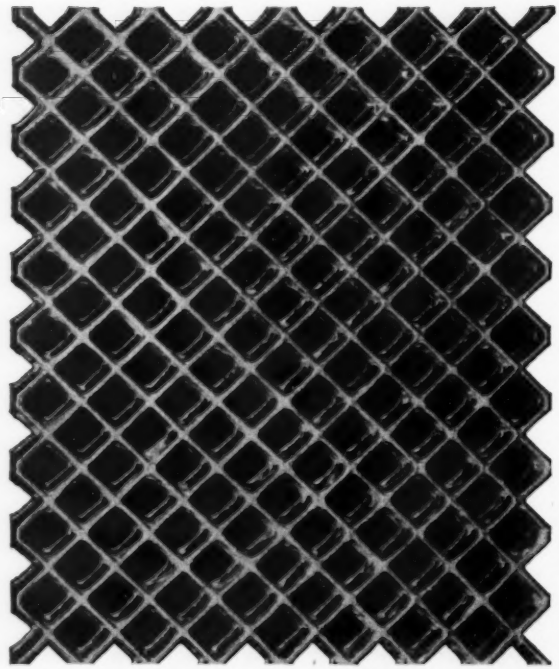
Before a No. 2 Hoffman Vacuum Valve is complete, 279 operations of hair-line precision are made. Every step of manufacture is rigidly tested. That's why we can guarantee these valves to give efficient, service-free operation for five years. Send today for our booklet that shows you exactly why No. 2 Hoffman Vacuum Valves are superior in every way. Hoffman Specialty Company, Inc., Dept. RX-61, Waterbury, Conn.

THE VALVE WITH THE PATENTED DOUBLE AIR LOCK

MULTICELL

UNIT HEATERS

ACCORDION —like HEATING SURFACE absorbs all Contraction and Expansion . . .



A special patented process of electrical deposition has made possible the Multicell one-piece copper heating surface. Multicell surface is 100% prime heating surface and makes for the most efficient heating available for a heater of a given size and weight.

ONE of the outstanding features of the outstanding Multicell Unit Heater is the fact that all contraction and expansion is absorbed within the accordion-like pattern of the one-piece seamless copper heating surface itself without the use of diaphram headers. This, with the all-cast frame amply strong to withstand piping strains, has made possible Multicell's sensational guarantee against leaks. Only accidental damage can interrupt Multicell's dependable operation and then only momentarily. The damaged section can be easily and quickly removed and, when flow and return headers are plugged, the remaining sections of the heater will operate effectively until repairs or replacements are made.

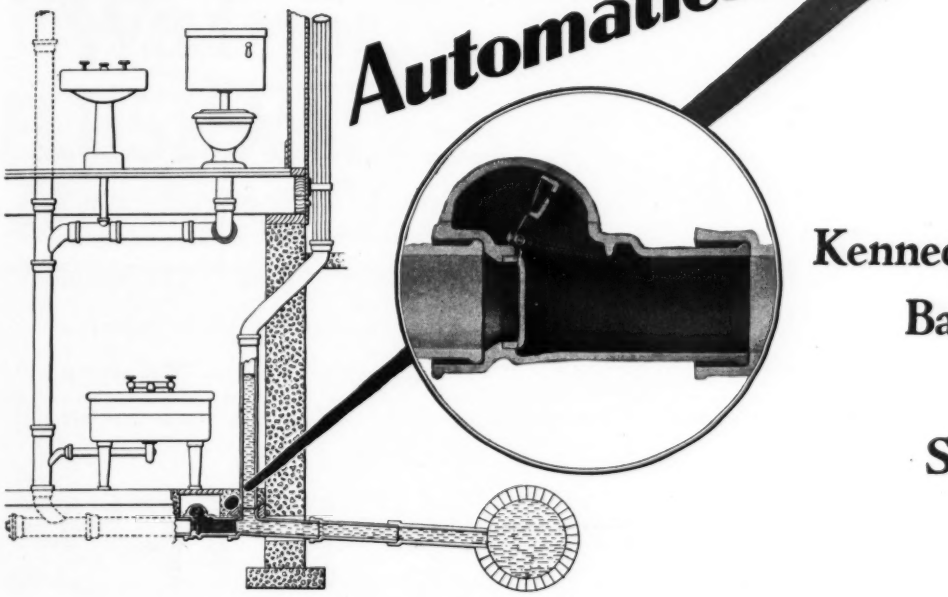
Demand Code Ratings

Multicell Unit Heaters are tested and rated in accordance with the standard code for testing and rating steam Unit Heaters, adopted January, 1930, by Industrial Unit Heater Association and American Society of Heating and Ventilating Engineers.

Insist on knowing "The Story Only Multicell Can Tell" before you install any unit heaters. A copy is yours for the asking.

MULTICELL RADIATOR CORP., LOCKPORT, N. Y.

Positive Protection Automatically



The Kennedy-Pennie Back-Water and Sewer Gas Valve

Your estimated profits are *actual* profits when you use KENNEDY Valves and Fittings

Kennedy Products are accurately machined and are carefully inspected and tested before shipment. By standardizing on Kennedy, you can speed up your pipe fitting jobs and be sure that your valves and fittings will stay tight and give lastingly trouble-free service.

WHENEVER you are called in to remedy back water or sewer gas troubles, install a Kennedy-Pennie Valve in the waste pipe of the building. It is a simple, automatic and positive-acting protection, and each installation usually leads to others as neighbors learn of its effective action.

These valves are readily installed in either a horizontal, inclined, or vertical position. They are provided with adjustable counter-balance to insure instant closure against back flow in any position, and are made smoke tight before leaving the factory.

Kennedy-Pennie Valves are widely used in residences, apartments, hotels, office buildings and public buildings, and have been approved by public health officials and sanitary engineers. Write for complete information.

THE KENNEDY VALVE MFG. CO., Elmira, N. Y.

WAREHOUSES: New York, 128-132 White Street; Chicago, 1335-1337 S. Clinton Street: San Francisco, 448-450 Tenth Street

SALES OFFICES: New York, Philadelphia, Cleveland, Chicago, Atlanta, Salt Lake City, El Paso, Los Angeles, San Francisco, Seattle

The Comment Corner

"The action of our 4-in. Kennedy - Pennie Back-water and Sewer Gas Valve is positive and it perfectly achieves the results for which it was built. We are greatly pleased with its operation and readily recommend your valve for use under the most adverse conditions."

—from an unsolicited letter by the Department of Public Safety of a large eastern city.

KENNEDY

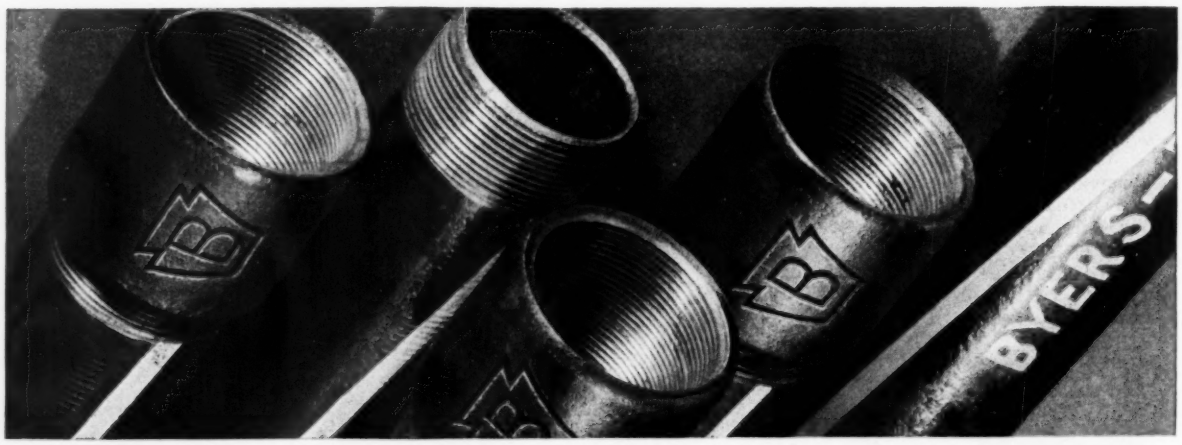
VALVES-PIPE FITTINGS-FIRE HYDRANTS

REPUTATION!

★ ★ ★

A plumber's reputation depends upon his record of service. The same thing is true of pipe. This is why modern plumbers safeguard their reputations by practicing "pipe prescription". "Pipe prescription" is installing the right pipe for the right place. Cost per year of operation is a basic factor

BYERS • GENUINE • WROUGHT-IRON PIPE

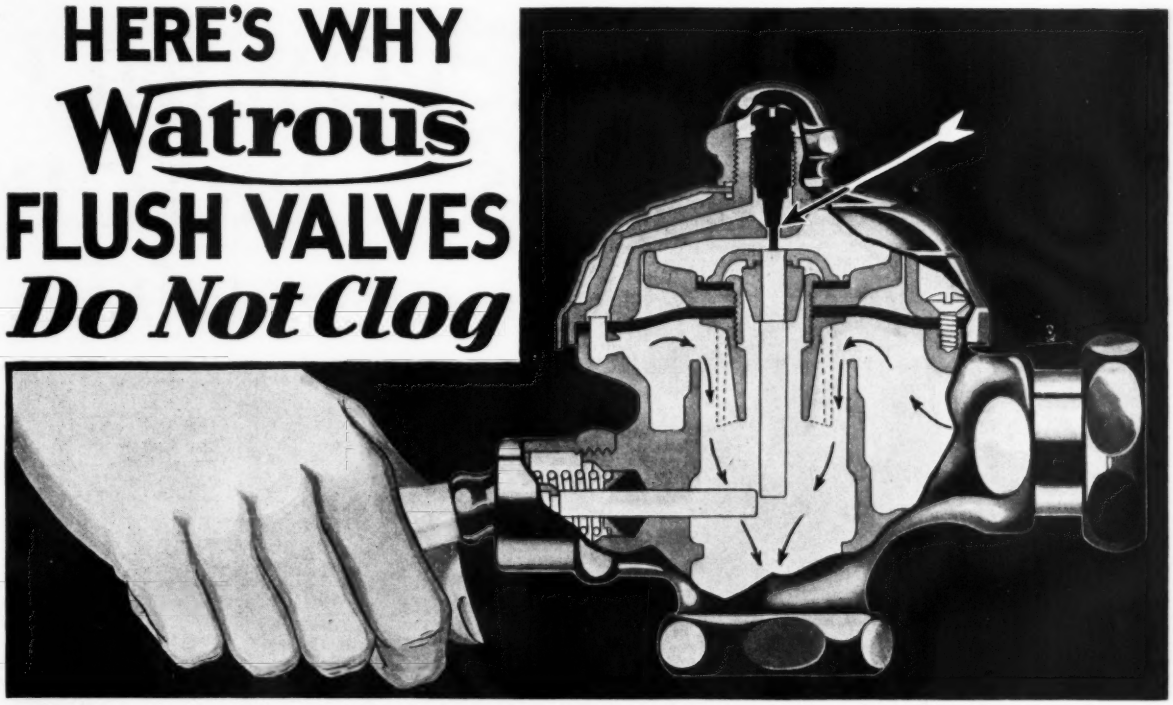


BYERS • GENUINE • WROUGHT-IRON PIPE

in "pipe prescription". This is why there is no effective substitute for Byers Genuine Wrought-Iron Pipe, in many places. It is easily identified by the Spiral Stripe. In impressing your customer with the importance of the "pipe prescription" you recommend to him, our research and sales facilities are at your service. A. M. Byers Company, Pittsburgh, Pa. Established 1864.

AN INVESTMENT—NOT AN OUTLAY

HERE'S WHY Watrous FLUSH VALVES *Do Not Clog*



How annoying it is when a flush valve fails to shut off—when water continues to rush into the bowl until the valve is taken apart and the obstruction removed!

In the Watrous Flush Valve, the by-pass is self-cleansing. Note, in the illustration, how the plunger is raised up off its seat at each flush. This permits grains of sand and other sediment to be washed away, insuring trouble-free performance. Notice the size of the port, too—much larger than is usual so that it will not readily clog.

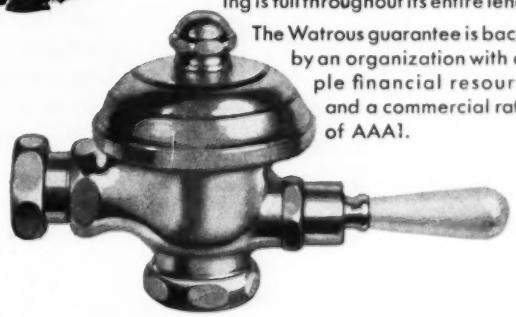
The action of the Watrous Flush Valve is positive and unfailing. On account of the large diaphragm area, the shut-off mechanism functions effectively even when operating under low-pressure conditions. There are no "top floor" troubles when Watrous Flush Valves are installed.

A Diaphragm Flush Valve with Outside Regulation and without Restricting the Waterway

By merely removing the cap and turning a small screw, the Watrous Flush Valve can be adjusted to supply the exact quantity of water needed to flush any make of closet bowl. It is not even necessary to shut off the water in order to make this adjustment—and once made, it remains permanent.

This arrangement does not necessitate any restriction of the waterway. The opening is full throughout its entire length.

The Watrous guarantee is backed by an organization with ample financial resources and a commercial rating of AAA1.



THE IMPERIAL BRASS MANUFACTURING CO.

1231 WEST HARRISON STREET . . . . CHICAGO, ILLINOIS

IN SPEED...POWER RUGGEDNESS...PRICE

—THE *outstanding* VALUE *in the 5-6½ Ton Range*

$3495
5-6½ TON RANGE

Model T-61 . . . 22,000 lbs. Straight Rating (total gross weight, including load) 4 wheelbases . . . wide range of tire options . . . worm drive standard—double reduction at slight extra cost . . . price 166¾ inch wheelbase chassis only f.o.b. Pontiac, Mich.

BETTERMENTS IN THE FAMED "331" ENGINE IN THE MODEL T-61

1) Down Draft Carburetion
2) Aluminum Alloy Pistons
3) Larger Water Pump
4) Improved Cylinder Head
5) Tulip Type Exhaust Valves
6) Lighter Valve Springs
7) Three-Piece Exhaust Manifold
8) Higher Oil Pressure
9) Cleanable Oil Filter
10) Triplex Air Cleaner

WHEN you buy heavy duty trucks it pays to invest in equipment in which every performance factor has proved its fitness for transportation of plumbing and heating materials.

In this big fellow you get *proved* dependability, *proved*, operating economy and *proved* ability to earn profits for owners in your industry.

From the standpoint of speed, power and brawny strength throughout the chassis—*and from the standpoint of price*—this model ranks as the No. 1 value of its capacity range.

***It is priced nearly $1500 under the average for trucks in this range.* Value like this doesn't "just happen." It's the result of General Motors Truck advantages in engineering, manufacturing and purchasing. Lowered material cost and production savings are passed on to you.**

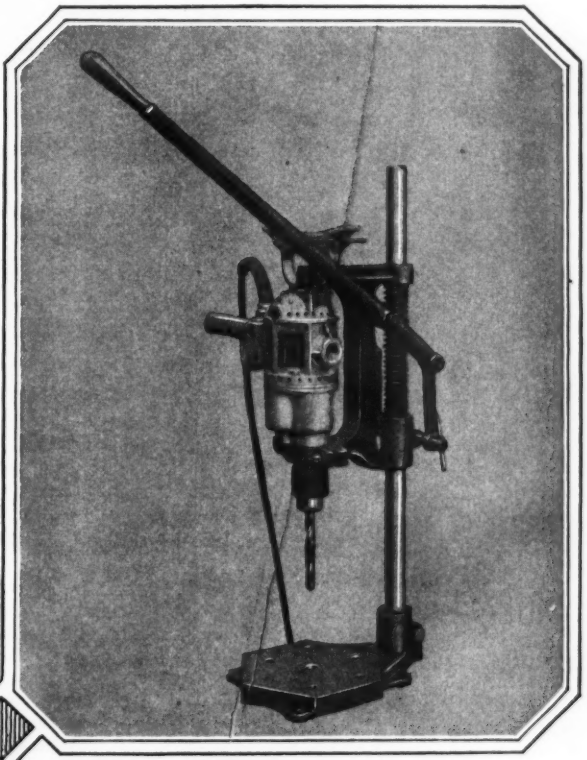
Get full facts about this great performer—today.

GENERAL MOTORS GM TRUCKS

A PRODUCT OF GENERAL MOTORS

GENERAL MOTORS TRUCK COMPANY, Pontiac, Michigan
(*Subsidiary of* Yellow Truck & Coach Mfg. Co.)
GENERAL MOTORS TRUCKS, YELLOW CABS and COACHES. Factory Branches, Distributors, Dealers—in over 2200 principal cities and towns. (*Time payments financed through* our own Yellow Manufacturing Acceptance Corporation, *at lowest available rates.*)

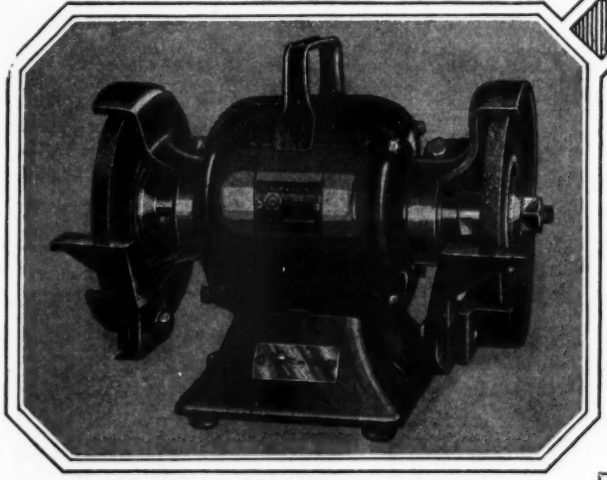
Useful Electric Tools for the Steamfitter and Plumber



Dozens of Jobs for the Famous ½-Inch Drill and Stand

DESIGNED and built for general purpose drilling, the Black & Decker ½-inch Portable Electric Drill is the most widely used drill in the world. Hole Saws, Twist Drill Bits and Wood Augers make it immediately adaptable to any drilling or hole cutting job in plumbing and steamfitting work. And the simple addition of a Bench Drill Stand immediately converts it into a strong practical Drill Press which enables the operator to exert tremendous pressure on bench work.

The drill itself is so powerful that a man cannot stall it—even when drilling in steel at its maximum capacity. Surprisingly light in weight. Driven by powerful Universal Motor, operating on A. C. or D. C., it can be plugged into any light socket or electric outlet.



6-Inch Bench Grinder for Tool Sharpening and Grinding

A POWERFUL, sturdy grinder, perfectly suited to general grinding, buffing and tool sharpening.

Wheel guards are adjustable, making it possible to grind at any position on circumference of grinding wheels. Finely balanced construction eliminates vibration. Equipped with rubber feet. Does not have to be fastened down. Lifting handle adds to convenience for use in any part of shop. Equipped with two grinding wheels—one coarse, one fine—and designed for long service with practically no attention. Speed 3000-3600 R. P. M. Made for 50-60 cycle, 110 volt alternating current. 7-inch and 10-inch sizes also available.

Buy Them From Your Jobber

BLACK & DECKER

TOWSON, MARYLAND, U. S. A.

Slough, Bucks., England — Toronto, Ontario, Canada — Sydney, Australia

Send for Catalogue of Complete Line.

The Black & Decker Mfg. Co. DE
Towson, Maryland

Gentlemen:
Send me your complete illustrated catalogue of Portable Electric Tools.

Name .....

Address .....

Jobber's Name .....

Making Bars That Hold

Of all the fixtures and fittings that go into a building, none is so susceptible to trouble as the plumbing.

It is often used by countless, careless, unthinking and even unclean people. Yet the fixtures must function perfectly through many years to come, if they are to repel the grim, ghostly shadows that haunt all such places as public toilet rooms.

The cost of attaining and maintaining such sanitation is far easier and far cheaper than many imagine.

Firstly: repair and replacement costs are closely allied with unsanitation. *Secondly:* all three are natural results of fixtures not designed and constructed to meet the jobs assigned them.

The answer is to find the plumbing fixtures that are built expressly for your particular jobs.

There is such a line, developed by the Clow Soldier of Sanitation to be the most complete in the world. It embraces every conceivable type of fixture, not only for dwellings but for schools, hospitals, industrial plants, public buildings and institutions.

It ranges from simple drain cocks to complicated hydro-therapeutic equipment for modern hospitals.

If you would put the grim ghosts behind bars for all time, call in the Clow Soldier of Sanitation. That line is at his back—and at his finger tips is the 52 years of accrued experience in handling the most acute sanitation problems.

Call him in—

CLOW

CHICAGO

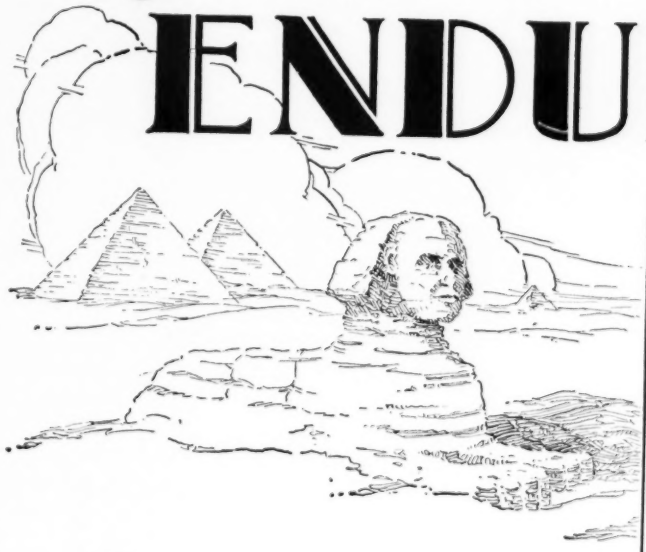
PREFERRED FOR EXACTING PLUMBING SINCE 1878

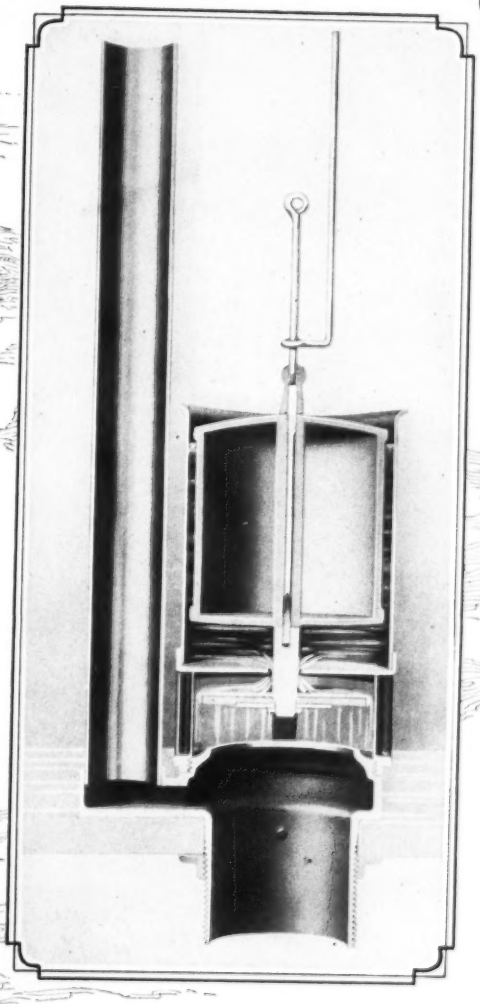
Consult your architect

You can meet the Clow Soldiers of Sanitation at the National Convention and Exposition of the National Association of Master Plumbers —at the Auditorium, Milwaukee, Wisconsin— June 22 through 25, 1931

QUIET and ENDURING

QUIET and ENDURING!





THE SPHINX --- AND CURTIN VALVES. WHERE DO THEY DIFFER? Both have lasting qualities---but the valve is built for service.

When you install a Curtin Product, you are assured of Another Job Well Done.

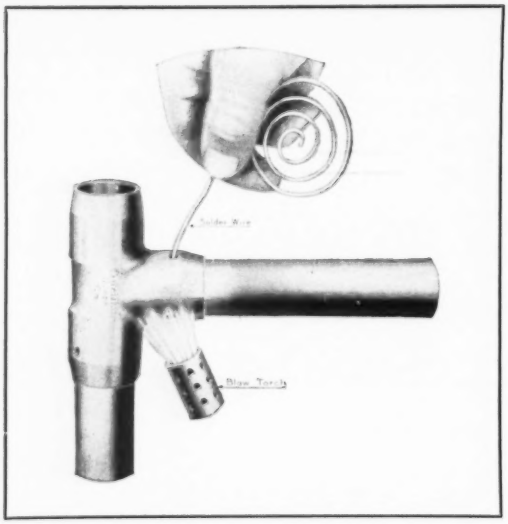
Automatically refills any closet.

Buy one today---Note its heavy bronze construction, powerful flushing qualities, and its quiet operation.

A. F. CURTIN VALVE COMPANY
Medford Mass.

CURTIN
VICTORY VALVES

STREAMLINE Hard Copper Pipe and Fittings are the Plumber's Latest and Greatest Asset for New or Remodeling Work



In these strenuous days of business getting, here is the plumber's ace-in-the-hole

Here is a fitting made for the plumber and steamfitter—A FITTING THAT REQUIRES THEIR TOOLS AND SKILL TO INSTALL.

IT IS NOT FOR THE JACK-OF-ALL-TRADES, NEITHER IS IT PROCURABLE FROM "DIRECT-TO-YOU HOUSES OR DEPARTMENT STORES"—moreover, an installation of STREAMLINE Hard Copper Pipe and Fittings appeal to an evergrowing copper conscious public.

The plumber's skill entitles him to a substantial profit; STREAMLINE Hard Copper Pipe and Fittings will furnish it.

There are no threads to cut nor flares to make. The end of the fitting is slipped over the pipe and soldered. The soldering is not done with a soldering iron but by means of the application of solder wire fed in through a conveniently located feed hole by the aid of the blow torch. The liquefied solder is distributed evenly and uniformly around the joint by the phenomenon of capillary attraction resulting in a connection that is many times stronger than the pipe itself.

The hard fatiguing labor of threading and the inconvenience of changing and transporting threading tools is completely eliminated. You will find that when you have completed a STREAMLINE installation that there is an amazing absence of leaks and in the great majority of jobs, no leaks whatever. Much time is saved in testing. There is very little labor in hoisting and no cracked fittings.

An installation of STREAMLINE Hard Copper Pipe and Fittings cannot rust, cannot develop leaks, requires less space—dissipates less heat, is procurable at a cost that closely approximates that of iron and is the strongest of any non-ferrous installation.

If you are not thoroughly familiar with this new profit-maker let us send you full particulars. A copy of our new catalog is yours for the asking.

Mueller Brass Co.

PORT HURON, MICHIGAN

Three Generations of Brass Making

Mueller STREAMLINE Fittings are furnished in full range and in sizes from ¼ inch to 6 inch inclusive

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
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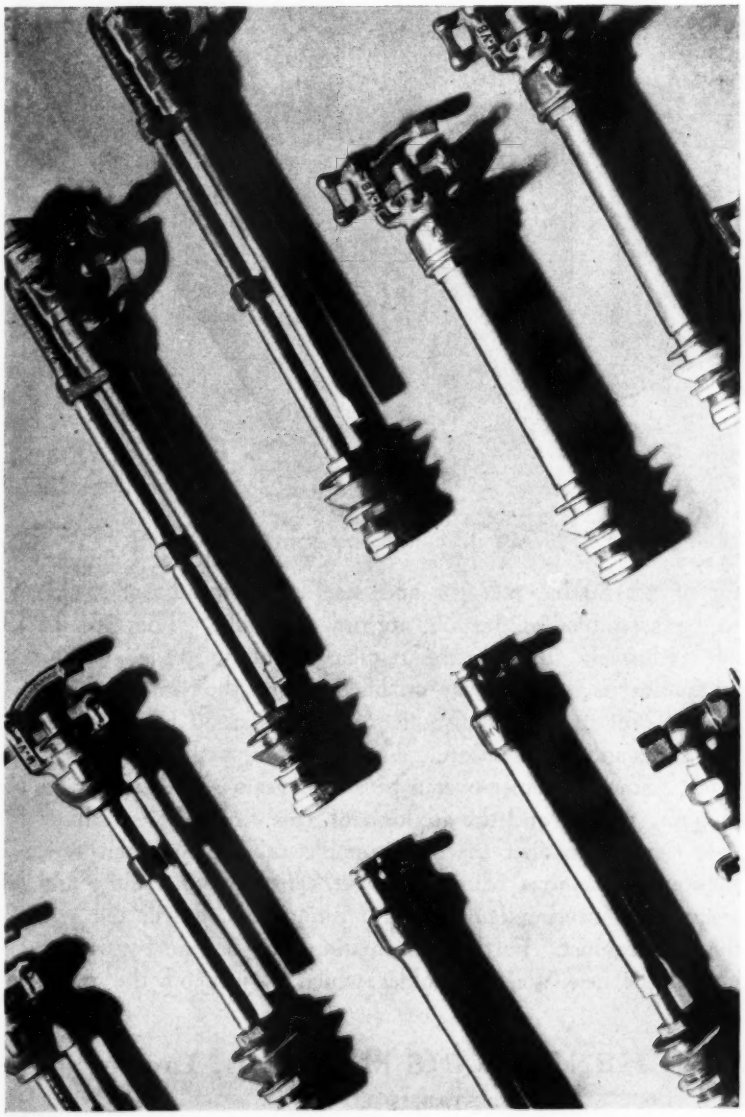
Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Designed to fulfill every set of conditions



THE LINE of M-VB ballcocks is carefully planned to include models which will answer the special requirements of practically every job the plumber may encounter. Among the points which must be considered in nearly every installation are:

Price . . . Frequently stiff price competition must be met, and yet high-grade equipment is demanded. For such cases, the M-VB No. 15 Elevated Ballcock, No. 6A Elevated Ballcock, and No. 12 Back-Supply Ballcock, all three built simply and strongly for long and hard usage, are ideal.

Connections . . . In addition to standard sizes, special shanks are made for nearly all M-VB ballcocks, so the plumber is not limited in his selection by unusual dimensions.

Water conditions and pressure . . . For adverse conditions of lime precipitation, and unusually high or low water pressures, M-VB No. 17A Elevated Ballcock, No. 1 Elevated Ballcock, and No. 12A Back-Supply Ballcock, are designed to provide silent, positive, trouble-free action over a long period of years.

Such provision for the widely varying needs of the plumbing trade is typical of the entire M-VB line of closet tank fittings. Fair price, quick installation and strong, rugged construction are outstanding features found in each item. Write for details and catalog.

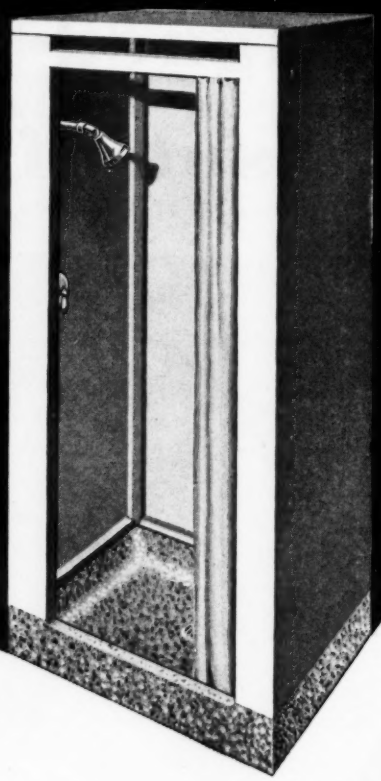
MORENCY-VAN BUREN DIVISION
Scovill Manufacturing Company
STURGIS MICHIGAN

M-VB

COMPLETE LINE OF CLOSET TANK FITTINGS

SCOVILL

NOW . . . a leakproof assembled shower cabinet by WEIS



Weisway Shower Cabinets, consisting of art marble receptor and steel or aluminum alloy side walls, to be assembled at the job, are now available. They will be marketed exclusively through the regular plumbing trade. The Weisway Cabinet is in every way qualified to bear the name of Weis, a name which, for more than fifty-five years, has stood for the greatest care in design and construction. The success enjoyed by the Weisteel Integral Shower Cabinet over a period of years is evidence of this thorough-going quality and the addition of this knockdown cabinet rounds out the line to offer the most suitable cabinet for each type of installation. The 1931 editions of *Sweet's Architectural Catalog* and the Domestic Engineering *Plumbing & Heating Catalog* will tell you about this new cabinet. Further information may be had by writing for a copy of the new Weisway folder which is just off the press.

The Weisway Shower Cabinet can be assembled from inside the receptor. No screws or bolts are used in making this a rigid, leakproof unit.

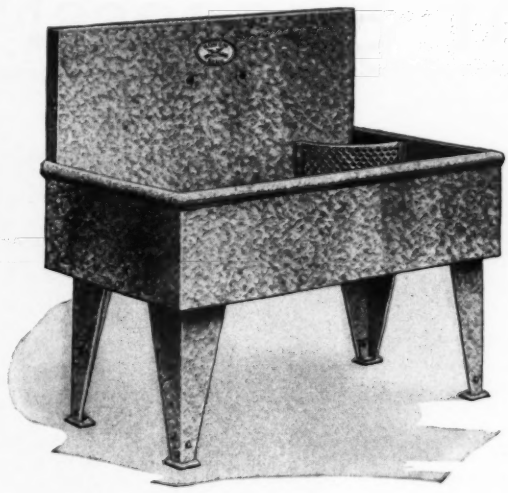
HENRY WEIS MFG. CO., Inc.

ESTABLISHED 1876

Elkhart, Indiana

WEISWAY

1881 — FIFTY YEARS OF SERVICE — 1931



KOVEN

Galvanized Scullery Sinks

. . . in Stock Sizes

Single and double compartment types, made of best quality open hearth steel and thoroughly galvanized after fabrication by the "hot dip" process.

Also —

Steel or Alloy Sinks

. . . to Specifications

Made to fit your exact requirements, especially where limitations of size and space must be taken into consideration.

We are fully equipped to fabricate for large installations, such as hospitals, cafeterias, etc., employing Monel, Allegheny or any other alloy. Ask us to quote you.

TRADE MARK
L.O.K.E.BRO. INC.

YOUR JOBBER can supply you with all necessary information on the "KOVEN" line. Ask him for specifications and prices on:

Range Boilers	*Pneumatic Tanks*
Storage Tanks	*Septic Tanks*
Expansion Tanks	*Fuel Oil Tanks*
Barber Boilers	*Etc., Etc.*

. . . OR WRITE for illustrated literature on any of the above items. KOVEN products have been manufactured for the trade since 1881, and have earned a reputation second to none for *first quality, sturdy construction* — and *true value.*

L. O. KOVEN & BROTHER, Inc.
154 Ogden Ave. Jersey City, N. J.

1881 — FIFTY YEARS OF SERVICE — 1931

New Boiler-Burner Unit Wins Instant Success!

Users and dealers report satisfaction beyond their fondest hopes. Remarkable economy of operation surprises many.

Already the new Petro Automatic Boiler is an established success! Actual shipments during January and February taxed our pre-season facilities to the limit. One retail outlet alone sold $10,500 worth in five weeks!

Saves on Oil!

With the heating season about over, letters by the score are coming in from actual users. One prominent architect says that he has used 50% less oil. Another owner has used 800 gallons less than he expected. "I used so little oil," writes one happy owner, "that I wondered if someone wasn't dumping oil in my tank without my knowledge!"

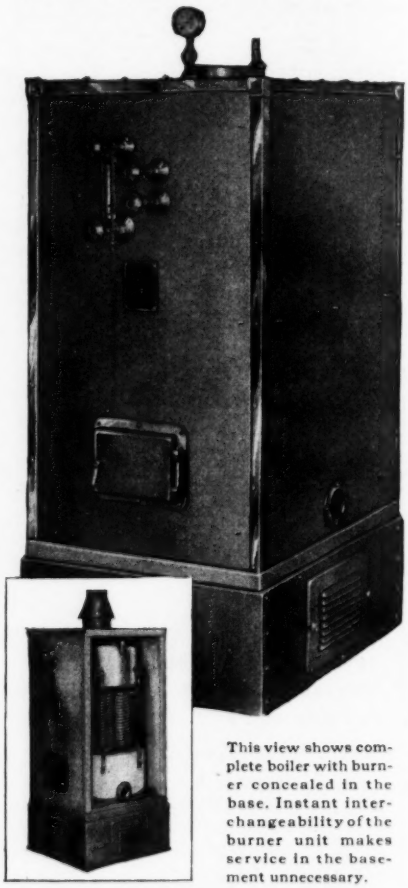
Ready-made Market

With such records of performance, a wonderful new market is opened up to oil burner dealers. This includes all new houses, remodeled houses and most important, all the old heating plants that need replacement. For now you can give these prospects *economical* automatic heat... both a boiler and a burner for either oil or gas... for practically the same price as an equally efficient boiler, alone.

This new Petro is made in sizes for all domestic requirements... steam, hot water or vapor. The complete unit comes assembled ready to connect to the piping. Instant interchangeability of the burner unit makes service in the basement unnecessary. Finished in a variety of rich, velvety colors... green, blue or tangerine.

Time-tested Principles

The illustration shows the new use of many time-tested principles. For the first time these well known methods of generating and absorbing heat are coordinated in a self-contained unit, scientifically designed to insure the highest possible recovery of the heat of combustion. Write today for full details of this greatest advance in the history of home heating.



This view shows complete boiler with burner concealed in the base. Instant interchangeability of the burner unit makes service in the basement unnecessary.

PETRO AUTOMATIC BOILER & BURNER COMBINED

First 3 Months in 1931 Break all Sales Records

January 1931 showed an increase of 97% over January of last year. And this was right after a highly successful Fall season that continued through the holidays. Then February came along with another increase...99% to be exact! And as this is being written, March is also running way ahead of any March in our history!

Our dealers could not have enjoyed this extraordinary increase during the lowest months in the year without a complete line. And our line this year is more simplified than ever before. They are all new designs, resulting from our 28 years' experience in oil heating exclusively

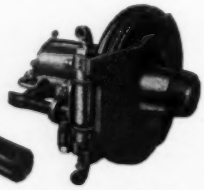
Our small rotary, that our dealers commonly install for $295 without tank, has proved itself in thousands of jobs. This year it is being built to burn *all three grades* of oil!

Our heavy oil domestic burner comes in sizes to handle radiation up to 17,500 feet. The electric ignition model has never been surpassed in dependability. In the industrial and commercial field, our new Model W is considered the finest burner on the market today. Write today for full details.

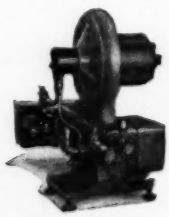
Petroleum Heat & Power Company
General Sales Office and Plants, Stamford, Connecticut

Small rotary

Electric ignition



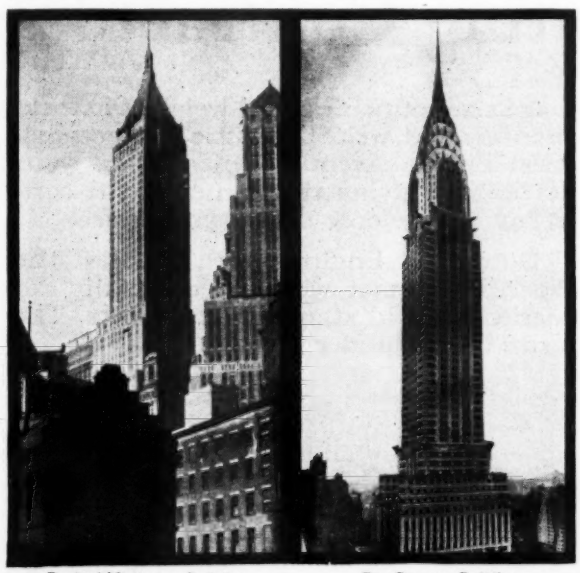
Industrial model



Heavy oil domestic

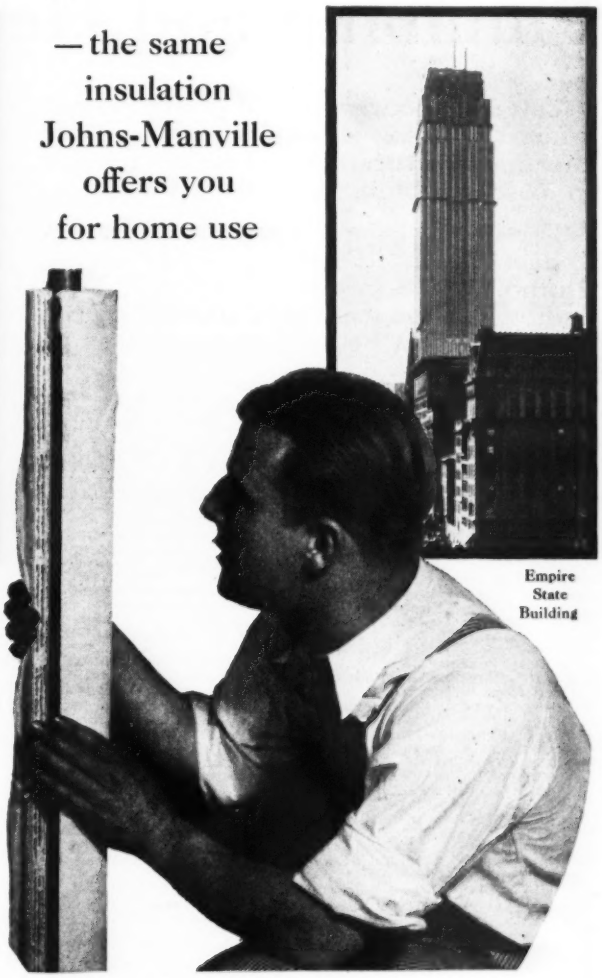
PETRO NOKOL

in THE WORLD'S 3 *tallest buildings*



Bank of Manhattan Building — The Chrysler Building

— the same insulation Johns-Manville offers you for home use



Empire State Building

THE fact that Johns-Manville Insulation was used throughout on the steam and hot water lines of the world's three tallest buildings should be of interest to every heating and plumbing contractor.

In using these same insulating materials on the domestic insulating jobs you handle every day, you can be certain that you are giving your customers the finest insulation obtainable anywhere.

Seventy years' research and development go into Johns-Manville Low Pressure Insulation. It is designed to save money for you and the user . . . it will reduce your labor costs . . . it will enable you always to do a job you can be proud of.

Thousands of plumbers and contractors have learned the economy of figuring on Johns-Manville Insulation—Asbestocel and 85% Magnesia—for all their work.

Your nearest plumbing supply house will fill your needs and show you how to use these nationally known, nationally advertised materials to best advantage. For further details or literature, write Johns-Manville, 292 Madison Avenue, New York City.

Johns-Manville

low pressure insulations

SPECIAL NOTICE

to

Plumbing and Heating Contractors

You can secure without charge, upon request, catalog sheets of any or all of the manufacturers listed below for use in loose-leaf binder.

These sheets are reprints of pages appearing in "Domestic Engineering Plumbing and Heating Catalog." They conform to the standards adopted by the plumbing and heating industries as to page size, punching and weight of stock. If interested, write Domestic Engineering, 1900 Prairie Avenue, Chicago, on your letterhead giving the names of the concerns whose loose sheets you desire.

Domestic Engineering handles the Speedlok binder which is especially designed to hold standardized sheets. The price of the binder is $3.00.

Abendroth Bros. ... Port Chester, N. Y.
Acheson Mfg. Co. ... Rankin, Pa.
Acme Asbestos Covering & Flooring Co ... Chicago, Ill.
Acme Frost Proof Closet Mfg. Co ... Baltimore, Md.
Acme Refining Co., The ... Cleveland, Ohio
Acme Shower Curtain Co ... Chicago, Ill.
Alamo Heater Co ... Chicago, Ill.
Alberene Stone Co ... New York City
Alliance Tank Co ... Alliance, Ohio
American Brass Co ... Waterbury, Conn.
American Brass Novelty Co ... Grand Haven, Mich.
American Manganese Bronze Co ... Holmesburg, Pa.
American Pipe Tool Co ... Chicago, Ill.
American Radiator Co ... New York City
American Steam Pump Co ... Battle Creek, Mich.
American Valve & Enameling Corp ... Indianapolis, Ind.
Armstrong Bros. Tool Co ... Chicago, Ill.
Armstrong Mfg. Co ... Bridgeport, Conn.
Atchison Specialty Mfg. Co ... Atchison, Kans.
Atlas Brass Foundry Co ... Columbus, Ohio
Automatic Gas Steam Radiator Co ... Pittsburgh, Pa.
Autovent Fan & Blower Co ... Chicago, Ill.
Badger & Sons Co., E. B ... Boston, Mass.
Ballantine, B. D ... Fitchburg, Mass.
Barnes Tool Co., Inc., The ... New Haven, Conn.
Barrett Mfg. Co., James ... Boston, Mass.
Bay Ridge Specialty Co., Inc ... Trenton, N. J.
Bead Chain Mfg. Co ... Bridgeport, Conn.
Beaton & Cadwell Mfg. Co., The ... New Britain, Conn.
Beaton & Corbin Mfg. Co., The ... Southington, Conn.
Beilman Water Heater Co., Inc., The ... Buffalo, N. Y.
Belknap Mfg. Co ... Bridgeport, Conn.
Bell & Gossett Co ... Chicago, Ill.
Beneke Mfg. Co ... Chicago, Ill.
Benson Co., Inc., Alex R ... Hudson, N. Y.
Bignall Co., The ... Medina, N. Y.
Blue Seal Chemical Co ... Roselle, N. J.
Boosey Mfg. Co., Norman ... Detroit, Mich.
Borden Co ... Warren, Ohio
Boston Brass Co ... Waltham, Mass.
Bowlus Mfg. Co., The ... Springfield, Ohio
Boyle & Co., Inc., C. A ... Chicago, Ill.
Boynton Furnace Co ... New York City
Bradley Washfountain Co ... Milwaukee, Wis.
Brunswick-Kroeschell Company ... Chicago, Ill.
Buckeye Pump & Mfg. Co ... Columbus, Ohio
Buffalo Forge Co ... Buffalo, N. Y.
Buffalo Meter Co ... Buffalo, N. Y.
Bullard Specialty Co ... Tiffin, Ohio
Burnham Boiler Corp ... Irvington, N. Y.
Butler Mfg. Co ... Minneapolis, Minn.
Butler, Thos. F ... Lorain, Ohio
Butt Mfg. Co., H. G ... Boston, Mass.
Camden Pottery Co ... Camden, N. J.
Capitol Brass Works ... Detroit, Mich.
Carty & Moore Engineering Co., Inc ... Detroit, Mich.
Case & Son Mfg. Co., W. A ... Buffalo, N. Y.
Cash Valve Mfg. Corp., A. W ... Decatur, Ill.
Celina Mfg. Co ... Celina, Ohio
Central Foundry Co ... New York City
Central Radiator Co ... New York City
Central Specialty Co ... Detroit, Mich.
Chamberlain Co., The ... Pittsburgh, Pa.
Chapman Valve Mfg. Co., The ... Indian Orchard, Mass.
Chicago Faucet Co., The ... Chicago, Ill.
Chicago Flexible Shaft Co. (Sprinkler Division) ... Chicago, Ill.
Chicago Granitine Mfg. Co ... Chicago, Ill.
Chicago Pump Co ... Chicago, Ill.
City Brass Corp ... New York City
Clearflow Valves ... Berkeley, Calif.
Cleveland Brass Mfg. Co., The ... Cleveland, Ohio
Cleveland Heater Co ... Cleveland, Ohio
Coco Brothers, Inc. ... New York City
Coldwater Brass Co ... Coldwater, Mich.
Columbia Radiator Co ... McKeesport, Pa.
Comet Radiator Co ... Philadelphia, Pa.
Commonwealth Brass Corp ... Detroit, Mich.
Compound Injector & Specialty Co ... Chicago, Ill.
Conemaugh Iron Works ... Latrobe, Pa.
Connors Paint Mfg. Co., Wm., The ... Troy, N. Y.
Conover Co ... Chicago, Ill.
Corcoran Mfg. Co ... Cincinnati, Ohio
Covert Company, H. W ... New York City
Crampton-Farley Brass Co ... Kansas City, Mo.
Crist & Schilken Co ... Pittsburgh, Pa.
Crown Die & Tool Co ... Chicago, Ill.
Curtin Valve Co., A. F ... Medford, Mass.
Curtis & Curtis Co., The ... Bridgeport, Conn.
Dahlquist Mfg. Co ... South Boston, Mass.
Dargent, Charles ... Brooklyn, N. Y.
Dart Mfg. Co., E. M ... Providence, R. I.
Davis Engineering Corp ... New York City
De-Bar Co ... Brooklyn, N. Y.
Decatur Pump Co ... Decatur, Ill.
Dececo Co., The ... Boston, Mass.
Delaware Tool Co ... Wilmington, Del.
d'Este Co., Julian ... Boston, Mass.
Detroit Lubricator Co ... Detroit, Mich.
Dick Brothers, Inc ... Reading, Pa.
Dixie Flashing Co., Inc ... Birmingham, Ala.
Dole Valve Company ... Chicago, Ill.
Donnelly Mfg. Co ... Malden, Mass.
Drackett Chemical Co ... Cincinnati, Ohio
Dunham Co ... Berea, Ohio
Dunkirk Radiator Corp ... Dunkirk, N. Y.
Duo-Tor Mfg. Co ... Dayton, Ohio
Duriron Co., Inc ... Dayton, Ohio
Duro Wood Products, Inc ... Capac, Mich.
Eagle-Picher Lead Co., The ... Cincinnati, Ohio
Eastern Foundry Co., The ... Boyertown, Pa.
Ebinger Sanitary Mfg. Co., D. A ... Columbus, Ohio
Economy Heater Co ... Chicago, Ill.
Economy Pumping Machinery Co ... Chicago, Ill
Eljer Co ... Ford City, Pa.
Elkay Mfg. Co ... Chicago, Ill.
Elkhart Foundry & Machine Co ... Elkhart, Ind.
Elkhart Iron Works ... Elkhart, Ind.
Emery Industries, Inc. ... Cincinnati, Ohio
Enterprise Brass Works ... Muskegon, Mich.
Erie Tool Works, The ... Erie, Pa.
Estabrook's Sons Co., R ... South Boston, Mass.
Ever-Ready Gas Heater Valve Co ... Detroit, Mich.
Excel Metal Cabinet Co ... Jamestown, N. Y.
Excelsior Leather Washer Mfg. Co ... Rockford, Ill.
Excelso Products Corp ... Buffalo, N. Y.
Exeter Brass Works ... Exeter, N. H.
Fairbanks Engineering Co ... Worcester, Mass.
Federal Radiator Co ... Zanesville, Ohio
Federated Laboratories, Inc. ... New York City
Fischer Spring Co., Chas ... Brooklyn, N. Y.
Flagg & Co., Inc., Stanley G ... Philadelphia, Pa.
Florence Stove Co ... Boston, Mass.
Gas-O-Gen Corp ... Chicago, Ill.
General Ceramics Co ... New York City
Gerard Mfg. Co ... Dickson City, Pa.
Germain Mfg. Co ... Saginaw, Mich.
Gerstein & Cooper ... South Boston, Mass.
Gerstein & Sons, H ... South Boston, Mass.
Gleockle, Jr., A. F ... Rochester, N. Y.
Globe Brass Mfg. Co ... Cleveland, Ohio
Gorton Heating Corp. ... Garwood, N. J.
Goulds Pumps, Inc ... Seneca Falls, N. Y.
Grabler Mfg. Co ... Cleveland, Ohio
Grand Haven Brass Foundry ... Grand Haven, Mich.
Grinnell Co., Inc ... Providence, R. I.
Haas Co., Philip ... Dayton, Ohio
Hamburg Boiler Works, Inc ... Hamburg, Pa.
Hanson Scale Co ... Chicago, Ill.
Hause Mfg. Co., Chas. F ... Omaha, Nebr.
Hayes Mfg. Co ... Paterson, N. J.
Hays Mfg. Co ... Erie, Pa.
Healey Brass Foundry Co., Peter ... Evansville, Ind.
Healy-Ruff Company ... St. Paul, Minn.
Heap & Sons, Wm. ... Grand Haven, Mich.

Hedges & Bro. ..... Newark, N. J.
Heller Bros. Co. ..... Newark, N. J.
Hercules Chemical Co. ..... New York City
Hetzel Roofing Products Co. ..... Newark, N. J.
Hindley Mfg. Co. ..... Valley Falls, R. I.
Hollands Mfg. Co. ..... Erie, Pa.
Holyoke Heater Co. ..... Holyoke, Mass.
Hotstream Heater Co. ..... Cleveland, Ohio
Hudson Brass Works, Inc. ..... Brooklyn, N. Y.
Hunt Co., H. W. ..... Reading, Mass.

I-X-L Pump & Mfg. Co., Inc. ..... Philadelphia, Pa.
Ideal Furnace Co. ..... Detroit, Mich.
Ideal Pump Co. ..... Detroit, Mich.
Illinois Engineering Company ..... Chicago, Ill.
Inland Iron Works, Inc. ..... Joliet, Ill.

J. R. S. Specialties Mfg. Co., Inc. ..... Patchogue, N. Y.
Janette Mfg. Co. ..... Chicago, Ill.
Jenkins Brothers ..... New York City
Jenkins Mfg. Co. ..... Bloomfield, N. J.
Jennison Co. ..... Fitchburg, Mass.
Johns-Manville Corp. ..... New York City
Johnson Fan & Blower Co. ..... Chicago, Ill.
Johnson-Washburn Co. ..... Boston, Mass.
Jones Hollow Ware Co. ..... Baltimore, Md.
Juvenile Wood Products, Inc. ..... Fort Wayne, Ind.

Kahn & Co., H. ..... Philadelphia, Pa.
Kainer & Co. ..... Chicago, Ill.
Kastone Co. ..... Cleveland, Ohio
Kaustine Co., Inc. ..... Perry, N. Y.
Keasbey & Mattison Co. ..... Ambler, Pa.
Keeney Mfg. Co., The ..... Newington, Conn.
Kellogg Mfg. Co. ..... Rochester, N. Y.
Kemohyne Products, Inc. ..... Philadelphia, Pa.
Kemp Mfg. Co., C. M. ..... Baltimore, Md.
Kennedy Valve Mfg. Co. ..... Elmira, N. Y.
Kent Co., Inc., The ..... Rome, N. Y.
Ketcham Mfg. Corp., G. M. ..... Brooklyn, N. Y.
Kewanee Boiler Corp. ..... Kewanee, Ill.
Keystone Brass Works ..... Erie, Pa.
Keystone Pottery Co. ..... Trenton, N. J.
Kieley & Mueller, Inc. ..... New York City
King Union Co., Inc. ..... Hillsgrove, R. I.
Kitson Co. ..... Philadelphia, Pa.
Kleinert Rubber Co., I. B. ..... New York City
Knott Mfg. Co. ..... Tell City, Ind.
Kuhns Brothers Co. ..... Dayton, Ohio
Kupferle Foundry Co., John C. ..... St. Louis, Mo.

Lavelle Rubber Co. ..... Chicago, Ill.
Lawson Co., The F. H. ..... Cincinnati, Ohio
Lawson Mfg. Co. ..... Pittsburgh, Pa.
Leavitt Machine Co. ..... Orange, Mass.
Lee Brothers Foundry Co. ..... Anniston, Ala.
Lehman Sprayshield Co. ..... Philadelphia, Pa.
Lehnert & Co. ..... New York City
Leonard-Rooke Co. ..... Providence, R. I.
Lewis Sanitary Tool Co. ..... Quincy, Mass.
Liquid Veneer Corp. ..... Buffalo, N. Y.
Lissberger & Son, Inc., Marks ..... Long Island City, N. Y.
Little Giant Mfg. Co. ..... Minneapolis, Minn.
Locke, Stevens & Sanitas, Inc. ..... Boston, Mass.
Lowe Mfg. Co. ..... Detroit, Mich.
Lucke, Wm. B. ..... Wilmette, Ill.
Lytton Mfg. Corp. ..... Franklin, Va.

McCaffrey Mfg. Co. ..... Chicago, Ill.
McCoy Mfg. Co., Inc. ..... New York City
McDonnell & Miller ..... Chicago, Ill.
McGurrin Supply Co. ..... Grand Rapids, Mich.
Malleable Iron Fittings Co. ..... Branford, Conn.
Marsh & Co., James P. ..... Chicago, Ill.
Martin & Sons, H. P. ..... Owensboro, Ky.
Marvel Machine & Brass Works ..... Cleveland, Ohio
Meer Made Products ..... Chicago, Ill.
Meneley-Diederich Co., Inc. ..... Los Angeles, Cal.
Michigan Pipe Co. ..... Bay City, Mich.
Milford Iron Foundry ..... Milford, Mass.
Miller Co., Chas. A. ..... Sturgis, Mich.
Milwaukee Stamping Co. ..... West Allis, Wis.
Milwaukee Valve Co. ..... Milwaukee, Wis.
Minneapolis-Honeywell Regulator Co. ..... Minneapolis, Minn.
Misener Mfg. Co., Inc. ..... Syracuse, N. Y.
Modern Iron Works ..... Quincy, Ill.
Modine Mfg. Co. ..... Racine, Wis.
Mohawk Septic Tank Co. ..... Schenectady, N. Y.
Molby Boiler Co., Inc. ..... New York City
Moore, F. J. ..... Minneapolis, Minn.
Morton Mfg. Co. ..... Chicago, Ill.
Muller, Edward ..... North Bergen, N. J.
Multicell Radiator Corp. ..... Lockport, N. Y.

Nash Engineering Co. ..... South Norwalk, Conn.
Nason Mfg. Co. ..... New York City
National Pipe Bending Co. ..... New Haven, Conn.
Neptune Meter Co. ..... New York City
Newark Brass Works ..... Newark, N. J.
New Britain Machine Co. ..... New Britain, Conn.
Newbury Mfg. Co. ..... Monroe, N. Y.
Newbury & Son, Jay H. ..... Goshen, N. Y.
New York Air Valve Corp. ..... New York City
New York Blower Co. ..... Chicago, Ill.
New York Brass Foundry Co. ..... New York City
Northern Indiana Brass Co. ..... Elkhart, Ind.
Northwestern Chemical Co., The ..... Marietta, Ohio
Nustone Products Corp. ..... Union City, N. J.
Nye Tool & Machine Works ..... Chicago, Ill.

O-E Specialty Mfg. Corp. ..... Milwaukee, Wis.
Ohio Brass Co. ..... Mansfield, Ohio
Ohio Heater Co., The ..... Columbus, Ohio
Olsen, H. T. ..... New York City
Oster Mfg. Co. ..... Cleveland, Ohio

Paine Co. ..... Chicago, Ill.
Para Rubber Co. ..... Newark, N. J.
Paradine Mfg. Co. ..... Erie, Pa.
Peerless Machine Co. ..... Racine, Wis.
Peerless Shower Door Co. ..... Brooklyn, N. Y.
Penn Engineering Co. ..... Reading, Pa.
Penn Engineering Co., The ..... Philadelphia, Pa.
Perfect Tank & Seat Co. ..... Syracuse, N. Y.
Perfection Stove Co. ..... Cleveland, Ohio
Phoenix Brass Fittings Corp. ..... Irvington, N. J.
Pipe-Saver Corp. of America ..... Carthage, N. Y.
Pittsburg Water Heater Co. ..... Pittsburgh, Pa.
Plomb Tool Co. ..... Los Angeles, Cal.
Polygon Products Co. ..... Boston, Mass.
Portland Iron Works ..... Portland, Ore.
Powers Regulator Co. ..... Chicago, Ill.

Quick Products, Inc. ..... Newark, N. J.

Radiator Specialty Co. ..... Charlotte, N. C.
Rawplug Co., Inc., The ..... New York City
Redion, O. M. ..... Bath, Maine
Reed Mfg. Co. ..... Erie, Pa.
Reinhardt Mfg. Co. ..... Cincinnati, Ohio
Rhode Island Fittings Co. ..... Providence, R. I.
Richards Corp. ..... Pittsburgh, Pa.
Richardson & Boynton Co. ..... New York, N. Y.
Richmond Foundry & Mfg. Co., Inc. ..... Richmond, Va.
Ridge Tool Co. ..... Elyria, Ohio
Riverside Boiler Works, Inc. ..... Cambridge, Mass.
Riverside Foundry & Galvanizing Co. ..... Kalamazoo, Mich.
Robbins, Gamwell & Co. ..... Pittsfield, Mass.
Robertshaw Thermostat Co. ..... Youngwood, Pa.
Robertson Co., H. H. ..... Chicago, Ill.
Rochester Circulator Co. ..... Rochester, N. Y.
Rock Island Mfg. Co. ..... Rock Island, Ill.
Rockford Brass Works ..... Rockford, Ill.
Royal Brass Mfg. Co., The ..... Cleveland, Ohio
Royal Textile & Mfg. Co. ..... Detroit, Mich.
Rumsey Pump Co., Ltd. ..... Seneca Falls, N. Y.
Russell Mfg. Co., Inc., John M. ..... Naugatuck, Conn.
Russell & Co., W. A. ..... New York City
Ryan Co., B. ..... New York City

S. E. T. Valve & Hydrant Co. ..... New York, N. Y.
Sall Mountain Co. ..... Chicago, Ill.
Sands Mfg. Co. ..... Cleveland, Ohio
San-Equip, Inc. ..... Syracuse, N. Y.
Sanitary-Dash Corp. ..... New York City
Sarco Co., Inc. ..... New York City
Saunders' Sons, Inc., D. ..... Yonkers, N. Y.
Savo Mfg. Co. ..... Chicago, Ill.
Scaife & Sons Co., Wm. B. ..... Oakmont, Pa.
Scientific Heater Co. ..... Cleveland, Ohio
Seehausen, Wehrs & Co. ..... Chicago, Ill.
Self-Cleaning Strainer Co. ..... Chicago, Ill.
Selfridge-Norton Mfg. Co. ..... Cleveland, Ohio
Semler Co. ..... Jeannette, Pa.
Sherwood Brass Works ..... Detroit, Mich.
Silver King Mfg. Co. ..... Philadelphia, Pa.
Simonds Saw & Steel Co. ..... Fitchburg, Mass.
Simplex Boiler Stand Co. ..... Brooklyn, N. Y.
Simplex Mfg. Co. ..... Chicago, Ill.
Smith & Wesson, Inc. ..... Springfield, Mass.
Smooth-On Mfg. Co. ..... Jersey City, N. J.
Spencer Regulator Co. ..... Salem, Mass.
Stack Heater Co. ..... Boston, Mass.
Standard Asbestos Mfg. Co. ..... Chicago, Ill.
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Standard Elsmere Granite Co. ..... Chicago, Ill.
Standard Tank & Seat Co. ..... Camden, N. J.
Sterling Faucet Co. ..... Newcomerstown, Ohio
Stoll, Chas. J. ..... New York City
Stow Mfg. Co., Inc. ..... Binghamton, N. Y.
Stringer Brothers Co. ..... Chicago, Ill.
Structural Slate Co. ..... Pen Argyl, Pa.
Stuart & Co., D. A. ..... Chicago, Ill.
Super Vacuum Gas Appliance Co. ..... E. Milton, Mass.
Swett Iron Works, A. L. ..... Medina, N. Y.

Taco Heaters, Inc. ..... New York City
Taylor Co., Halsey W., The ..... Warren, Ohio
Teck Manufacturing Co. ..... Chicago, Ill.
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Toledo Pipe Threading Machine Co. ..... Toledo, Ohio
Trageser Steam Copper Works, John ..... Maspeth, N. Y.
Trenton Brass & Machine Co. ..... Trenton, N. J.
Trimont Mfg. Co., Inc. ..... Boston, Mass.
Tryco Products, Inc. ..... Westfield, Mass.

U. S. Rubber Company ..... Cleveland, Ohio
Utica Radiator Corp. ..... Utica, N. Y.
Utility Laboratory, Inc. ..... Brooklyn, N. Y.

Van Arnam Mfg. Co. ..... Fort Wayne, Ind.
Vanderman Mfg. Co. ..... Willimantic, Conn.
Vinco Co., Inc. ..... New York City
Vitreous Enameling & Stamping Co., Inc. ..... New York City
Vogel Co., Joseph A. ..... Wilmington, Del.
Vulcatex, Inc. ..... Chicago, Ill.

Wade Iron Sanitary Mfg. Co. ..... Chicago, Ill
Walker Dishwasher Corp. ..... Chicago, Ill.
Wall Mfg. Supply Co., P. ..... Pittsburgh, Pa.
Walworth Company ..... Boston, Mass.
Ware Coupling & Nipple Co. ..... Ware, Mass.
Warnock Manufacturing Co. ..... Worcester, Mass.
Warren Electric Appliance Co. ..... Warren, Pa.
Washington Metal Products Co. ..... Washington C. H., Ohio
Watts Regulator Co. ..... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ..... Elkhart, Ind
Wesley Co., Chas. ..... Chicago, Ill.
Wessels & Sons, D. D. ..... Detroit, Mich.
Western Wire Products Co. ..... St. Louis, Mo.
Westinghouse Electric & Mfg. Co. ..... East Pittsburgh, Pa
Wheeling Machine Products Co. ..... Wheeling, W. Va
Whitlock Coil Pipe Co. ..... Hartford, Conn
White Mfg. Co. ..... Newark, N. J
Wilbur & Williams Co. ..... Boston, Mass
Wilks Mfg. Co., S. ..... Chicago, Ill.
Williams & Co., J. H. ..... Buffalo, N. Y
Wood Mfg. Co., John ..... Conshohocken, Pa
Worcester Brush & Scraper Co. ..... Worcester, Mass

"X" Laboratories ..... New York City

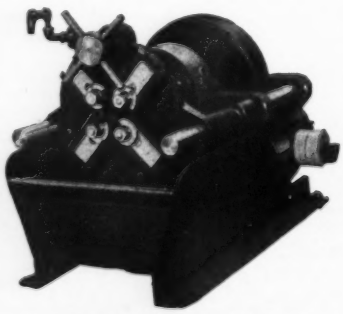
Yeomans Brothers Co. ..... Chicago, Ill
Yost Mfg. Co. ..... Meadville, Pa

Zurn Mfg. Co., J. A. ..... Erie, Pa

FOR THE SHOP OR THE JOB—

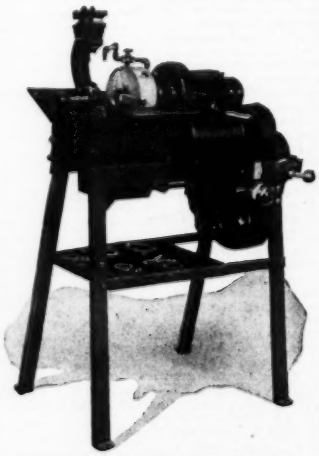
— For the shop the "TOLEDO" No. 1000M Power Pipe Machine is ideally suited. It is fast, efficient, sturdily built to last many years. Can be equipped with a motor to operate on almost any current or cycle desired. Can be supplied with following extra equipment quoted on request: ¼-in. and ⅜-in. die heads and dies. Bolt dies from ¼-in. to 1-in. inclusive and attachment. Conduit or straight thread dies.

— For the job the "TOLEDO" No. 999 is ideally suited. It is strictly portable, weighs but 275 lbs. Can be carried by two men. Equipped with Universal, reversible, ball-bearing motor that works on any 110 volt current. No gears to shift, all controls centralized in starting switch. Cuts and threads pipe in record time. Can be supplied with following extra equipment quoted on request: ¼-in. and ⅜-in. die heads and dies, Bolt Dies from ¼-in. to 1-in. inclusive and attachment, special Steel Stand, Reamer, Left Hand Dies, Conduit or straight thread dies. THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO, NEW YORK OFFICE, 72 LAFAYETTE STREET.



"TOLEDO" No. 999, ½-in. to 2-in. Portable Power Pipe Machine. Operates on 110 volt current only. Any cycle from 25 to 60.

Net Price.....$275.00
(West of Rockies $288.75)



"TOLEDO" No. 1000M, ½-in. to 2-in. Power Pipe Machine. Can be equipped with A.C., D.C., or Universal motor. Specify voltage.

Net Price.....$350.00
(West of Rockies $367.50)

"TOLEDO"

POWERFUL *SPEEDY*

DOMESTIC
ENGINEERING
APRIL 18, 1931

Our Industry

A slack time in business—like that from which we are beginning to emerge—may be compared to a dam. Just as the water of any stream presses with increasing force against this strange barrier, so an industry tries harder than ever to discover the means of resuming its customary sales volume.

♦ ♦

The water of the blockaded stream rises higher and higher, opening up the possibility of a new channel being found to relieve the pressure on the main channel.

♦ ♦

Many of these new channels look tempting. Some may be cut deep enough by the hurrying waters so that when the dam is removed these new outlets share its burden with the main stream.

♦ ♦

Most of these channels prove deceptive and dry up quickly when the river is permitted to resume its normal flow.

♦ ♦

Many of those in the plumbing and heating industry are working to bring its volume back to a profitable level. Some are likely to be dazzled by the promises apparently offered by a new by-pass from the main stream. Still others seem inclined to ignore the restless undercurrent and wait placidly for times to get better.

♦ ♦

The 1931 dam was not built on the shortcomings of the plumbing and heating industry alone. The slowing down of business has been a national and international phenomenon from which every industry suffers. But it is well to remember that the plumbing and heating industry, and in fact the entire building field, was poorly equipped to meet this new barrier.

♦ ♦

Our industry had just begun to put on its fighting clothes. The easy going years when enough customers asked for our products to keep manufacturing plants reasonably busy, to bring wholesalers a large enough volume to earn some profit and to call for the services of a growing number of contractors, had brought many newcomers into the industry.

♦ ♦

More manufacturers, more wholesaling outlets and more contractors had been added until even a record-breaking volume was not large enough to provide a profit for more than a few.

♦ ♦

This new obligation to sell rather than wait for orders led to the development of newer and more attractive heating and plumbing material, to the entrance of some wholesalers into selling programs on specialties instead of relying on staples and to the even larger increase among contractors of both a willingness and an ability to sell.

♦ ♦

Business conditions are bringing about in months rather than years, necessary changes in methods. Fortunately we had already started the improvement and in its most progressive contractors, wholesalers and manufacturers, the industry will find its greatest strength.

♦

◆

Merchandising is just selling under another name. And selling is just another name for hard work and common sense.

The Waldorf-Astoria hotel is located in New York City and the modern construction employed caused many problems to arise in the design and installation of the plumbing

Modern Construction Makes for New Plumbing Standards —

By the Staff of
CLYDE R. PLACE
Edited by
ERNEST WILLIAMS

The writers discuss in a clear and interesting way many of the outstanding features of this unusual job, some of which are summarized in the following excerpts:

"Cold water is simple enough to meter but hot water presents a problem. Two general schemes were used.

"In water systems for tall buildings, the design hinges mainly on the location and number of gravity tanks. One high and three intermediates were decided upon.

"The four services were metered and carried to a single distributing header. This is an innovation in plumbing design.

"The eight-inch cold water line to the house suction tank which is of extreme importance, is guarded on both sides of its connection.

"The water from the condenser is taken by a somewhat unusual piping arrangement."

THE plumbing system in the new Waldorf-Astoria hotel as designed and installed is interesting not only because of the magnitude of the undertaking, but because it involves some unusual features due in some cases to the construction of the building and in others to the attempt to improve on our standards of design. Too few realize that in hotel construction one of the most expensive portions of the mechanical equipment is the plumbing. Savings in installation and operation may be effected by the proper application of the principles of engineering economics. When the cost of the plumbing runs into millions of dollars, as it does in the Waldorf, slight variations in design often cause great savings. In some cases they not only effect a saving but improve the system as will be pointed out when the different items are discussed.

A good idea of the magnitude of the Waldorf-Astoria job can be obtained by a perusal of the following list of fixtures:

Approximate Fixture List

1,871 Lavatories.
1,779 Water Closets.
1,539 Bath Tubs.
141 Showers.
112 Sinks.
100 Urinals.
73 Slop Sinks.

Before the actual design was started, a very complete study of several types of water systems was made, as to method of operation, cost of installation and cost of maintenance and operation. In general, in the design of water systems for tall buildings, the problem hinges mainly on the location and the number of gravity tanks.

It can be seen that in a building 600 ft. high, which is approximately the height of the Waldorf, systems may be designed using two, three or four tanks. If two tanks are used, employing the intermediate as a combined house and fire tank the length of run of the risers is approximately 300 ft. Should another tank be interposed without this 300 ft. so that the length of run is 150 ft., the net weight of the pipe using the two tanks is very much less than the net weight of pipe serving the same quantity of water to the same fixtures using one pipe.

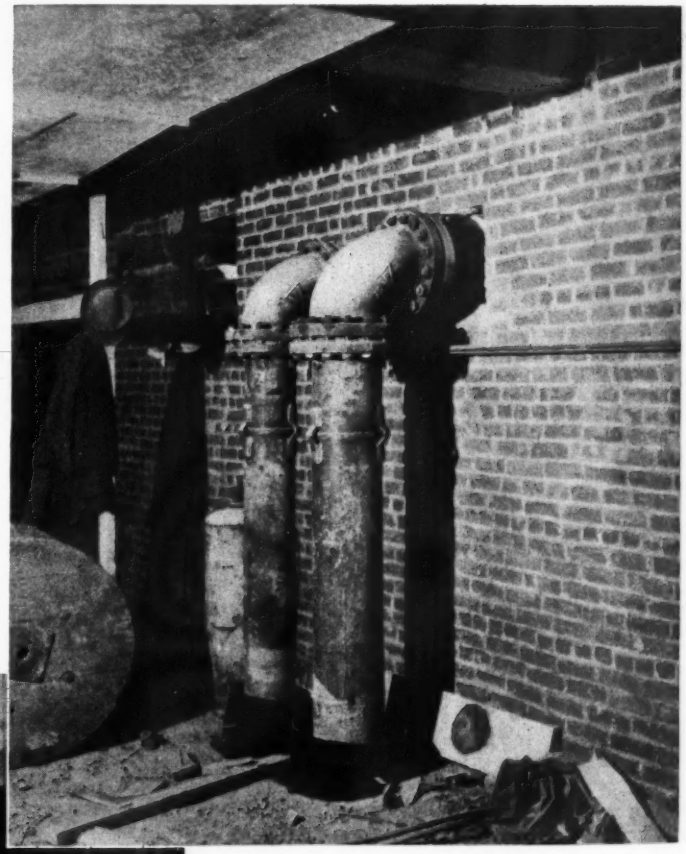
In water systems for tall buildings, the design hinges mainly on the location and number of gravity tanks. An economic balance can be set up

Consequently, an economic balance can be set up wherein the additional cost of an extra tank plus the

rental for space required for same is balanced against a considerable saving in pipe; a saving in pumping charges, and a saving in pressure reducing valves.

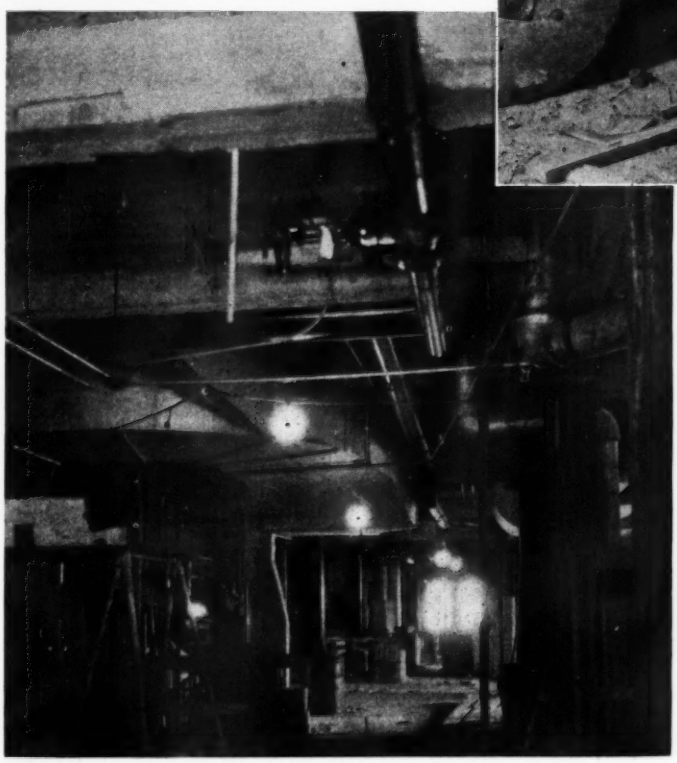
With these items must also be evaluated the advantages of simplicity and the benefits of doubling the flexibility of control. The design of the building must be considered also because of the required headers, the location of set-backs and the floor or floor heights required on those floors where distributing headers are required.

Thorough investigation resulted in decision to divide system into four sections with static pressures limited to a maximum of 68 lb.



At the right are shown two lines located at the basement level which originate at separate sources and enter the building from above the track space

Below, view of the 17th floor ceiling. The drainage lines may be seen as well as ice-water circulating lines. The exhaust duct is the intermediate level collecting system for toilets



After a thorough investigation of the above variables a system was accepted using four tanks, one high and three intermediates. Not only was this system the most desirable from the operating and installation viewpoint but it also effected a saving in installation and operation.

When the system is divided into four sections the static pressures are limited to a maximum of 68 lb., which is a reasonable limit using no pressure reducing valves.

On the top of the building are two small towers. In one is placed a 3,500 gallon tank the filling of which is manually controlled for the fire standpipes. In the other tower at elevation 598 ft. 6 in., the high level house tank is placed. The tank is 10 ft. by 12 ft. by 12 ft. 6 in. high with a water capacity of 10,000 gallons. It is fed by a 4-in. pump riser from the high level pumps in the basement.

From this tank an 8-in. C. W. to fixtures lines is taken, distributing on the 42nd floor ceiling and feeding sjxteen main risers. A 4-in. C. W. line is also taken to the high level H. W. heaters located on the 32nd floor. The 6-in. H. W. riser is carried up to the 42nd floor, feeding down to the same number of stacks as the cold water. The high level tank feeds down as far as the 32nd floor. The H. W. circulation lines are collected on the 30th floor ceiling.

The high level intermediate tank of 10,000 gallons capacity is located on the 33rd and 34th floors. From this tank an 8-in. C. W. supply to fixtures is taken distributing on the 30th floor ceiling to twenty-one stacks. The H. W. heaters for the high level intermediate system are located on the 20th floor being fed by a 5-in. C. W. supply from the tank and supplying a 5-in. header paralleling the C. W. header on the 30th floor and feeding the same stacks.

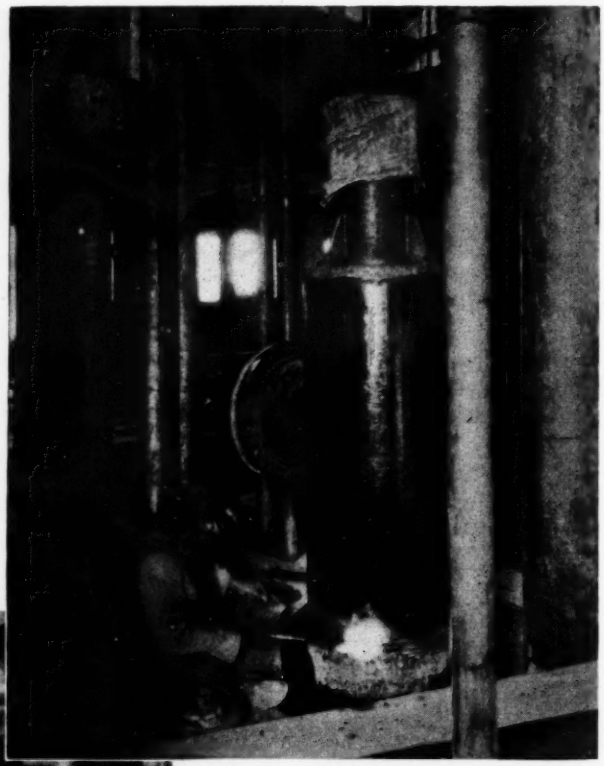
The intermediate tank is located on the 21st and 22nd floors. The tank is 11 ft. by 14 ft. by 18 ft. 6 in. and

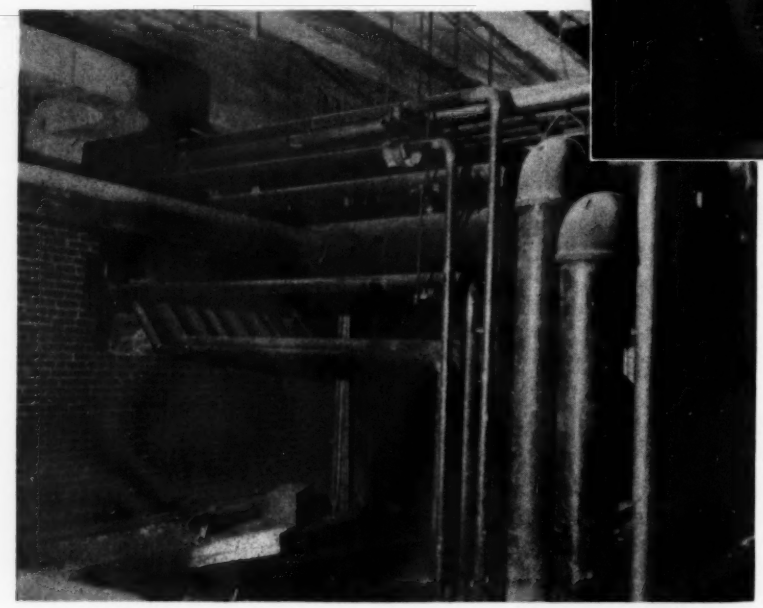
is of 20,000 gallons capacity, of which 5,000 gallons is reserved for the fire standpipes, the supply for the fixtures being taken off high enough in the tank to assure the above reserve. From the intermediate tank a 10-in. C. W. line is taken distributing on the 19th floor ceiling and feeding sixty-three stacks.

The hot water heaters for this system are located on the 11th floor. The C. W. to the H. W. heaters is 6 in. in diameter. The H. W. riser is of the same size, feeding a distributing header on the 19th floor.

The low level tank is located on the 12th and 13th floors. It is 12 ft. by 12 ft. by 15 ft. 3 in. high and is of 15,000 gallons capacity. The C. W. discharge line to fixtures is also 10-in., distributing on the 9th floor ceiling to sixty-two stacks.

The H. W. heaters for this system are located in the sub-basement, being fed by a 6-in. C. W. line and distributing into a 6-in. H. W. riser which also distributes on the 9th floor ceiling. The returns from this system are collected by pipes run through the girders which support the building over the New York Central Railroad tracks.





Above, welding in a large reducing tee at the 17th floor where the pipe is reduced from 24-in. to 18-in.
Main pipe shaft offset at intermediate basement level. Note the brine mains on blocking to receive cork covering

Naturally, throughout a building of this type, stacks are eliminated or combined. When a stack stops it is feasible to stop the cold water, but hot water returns must be continued to the hot water heaters to insure proper circulation. In these cases the hot water riser is dripped and checked and valved at the bottom and a ¾-in. return carried to the hot water line of a nearby stack. The valves are so located as to be accessible from an access door in the wall at the base of the stack.

One scheme for metering the hot water is in the use of a multiplicity of small meters. The other scheme is to use a meter on the hot water supply line to the section and a meter on the return

In many cases the water to kitchens and rentable spaces are metered. Cold water is simple enough to meter but hot water offers a problem. Two general schemes for hot water metering are used, according to the conditions to be met. One is to use a multiplicity of small meters located so that the length of travel from the meter to the fixture is short enough to prevent chilling of the line without a circulation line. This scheme is used mostly in kitchens where large enough quantities of water are used so that the drawing off of the water itself causes the circulation.

The other scheme is to use a meter on the hot water supply line to the section and a meter on the return. The difference in the readings representing the quantity of water consumed. This system has a slight disadvantage in that the extra meter is an added restriction to flow and the piping must be sized to compensate for same.

In the lower section of the building plugged water outlets were left in numerous places where fixtures were likely to be added to conform with possible tenant changes.

Street Service Connections and Service Header

Before determining the service lines into the building, a study of the mains in the streets for several blocks

around the building were made with the valved interconnections. Since it is of the utmost importance that there should be no interruption of the water service to the building it was decided to take in as many services as there were independent mains in the streets around the building.

The following service lines were brought into the building:

One 8-in. C. W. service from a 20-in. main in 50th street.

One 8-in. C. W. from a 20-in. main in Lexington avenue.

One 4-in. C. W. from a 6-in. main in Lexington avenue.

One 5-in. C. W. service from a 6-in. main in 49th street.

These mains are so valved at their intersections that a break in any one of them will not affect any of the other three, provided the valves are properly manipulated.

The services from Lexington avenue had to be carried through holes in five of the steel girders supporting the building.

The distributing header is an innovation in plumbing design and is located outside of the engineer's office

The four services are metered and carried to a single distributing header. This distributing header is an innovation in plumbing design and works out very well on large installations. The header is located at the wall outside of the engineer's office. The 8-in. C. W. from 50th street and the 5-in. C. W. from 49th street are valved into one end of the header; the 8-in. C. W. from Lexington avenue and the 4-in. C. W. from the same street are valved into the other end. The 4-in. from Lexington avenue is used as the supply to the fire suction tank but the valve into the header permits its supply to supply the house if necessary or permits the other services to augment the supply to the fire suction tank when necessary.

From this header the main sources of supply for the building are taken, as follows:

4-in. C. W. to low level fixtures.

8-in. C. W. to air conditioning apparatus.

4-in. C. W. street pressure to kitchen.

8-in. C. W. to house suction tank.

3-in. C. W. Savarin restaurant.

6-in. C. W. to laundry.

The 8-in. C. W. to the house suction tank which is of extreme importance, is guarded on both sides of its connection to the 8-in. header by means of 8-in. gate valves so that in case of a break in any part of the header that section may be shut off and the line be fed from the other side by the two remaining headers.

Each of these lines from the header are valved, the valves being located approximately 6 ft. from the floor. Thus, the engineer can control the entire water system by manipulating the valves located right at the door of his office.

This view shows some of the piping installed in the 17th floor. Both plumbing lines and steam distributing mains are hung on ceiling

The air conditioning equipment in the building when operating at 100 per cent capacity will use approximately 750 G.P.M. of water for condensing purposes. This quantity of water closely approximates the demand of the building for the fixture supply.

It was found to be feasible to use the condensing water in the plumbing system and the water from the condenser is taken by a somewhat unusual piping arrangement

Since the condensers using this water are operating at pressures which are far below that of the cooling water, it is feasible to use the condensing water in the plumbing system.

The water from the condenser is taken by a somewhat unusual piping arrangement. The suction tank is equipped with two sets of ball cocks, one set approximately two feet below the other. The upper ball cocks are connected to the discharge from the condenser and the lower cocks are connected to the 8-in. line from the service header. A line from the condenser line is carried up and discharges behind a leader trap.

The operation of this arrangement is as follows:—When the condensers are in operation the condenser water flows into the suction tank. If the house demands do not exceed the condenser discharge the tank level rises and closes the upper ball cocks. The water then rises in the pipe connected to the leader trap and dis-

charges to the sewer. If the house demand exceeds the condenser discharge the level of the water in the tank falls and the ball cocks connected to the header open and augment the supply. The system is entirely automatic. The ball cocks are duplicated and separately valved so that a failure will not cripple the system.

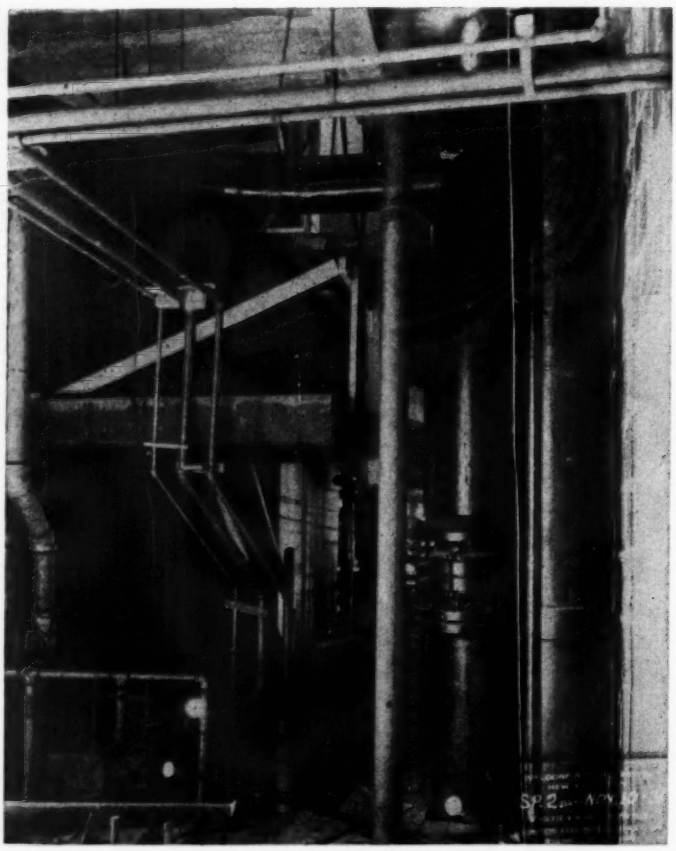
The soil and vent system is divided into two separate systems. The stacks from the tower are collected on the 19th floor ceiling and carried down separately to the girder space.

Likewise the stacks below the 19th floor are connected at the ceiling into two large vent headers which are carried separately through the roof. Consequently, since the New York code fixes its sizes by the floors of fixtures, the sizes of the vent and soil pipes are cut to a minimum seldom exceeding a 5-in. soil and a 4-in. vent.

As far as was possible, the stacks were collected in deep ceilings on the third and fourth floors to avoid excessive piping in the girder space.

Girder Space Piping

The most unusual feature of the job is the piping in the girder space over the New York Central railroad tracks. Except for a small portion on the north side of the building the hotel is built over the New York Central railroad tracks. Deep and long span girders support the building columns.



The main pipe shaft at the 17th floor. The expansion joint is in connection with the main steam riser

The limiting headroom and peculiar construction of the ground floor made it necessary to use the space occupied by the girders to run the house drains, circulation headers, snow melting headers, gas and water services, and the girder drainage piping. Because of the numerous holes required in the girders it would have been an extremely difficult and dangerous task to burn them on the job. Consequently, even before the plumbing design had been fairly started, the piping in the girder space was laid out. The piping required over 200 holes through steel, these holes ranging from 3-in. to 15-in. in size. These holes had to be arranged to give the pipes the required pitch, to care for expansion, and at the same time it was required that they be located in such sections of the girders which were not under heavy fibre stress.

All of these holes were cut in the girders before they were sent to the job. Impossible as it may seem, the plumbing piping was put through these holes without changing any of them.

There are four 12-in. and one 6-in. house drains piped through holes in the girders. The 6-in. and one 12-in. house drains connect to a 24-in. vitrified tile sewer in Lexington avenue. The remaining three 12-in. house drains connect to a 4 ft. by 2 ft. 8 in. oval concrete sewer in 50th street.

The girder space is drained by twelve small shallow sumps located on the Lexington avenue side of the building. Each sump is independently and automatically controlled, being drained by a self-priming pump.

The sidewalk flushing header is carried around the girder space. This line is 2 in. in diameter branching up to 1½ in. sill cocks. In the 1½-in. risers automatic ball drips are provided to prevent freezing when the line is shut down. The entire line drips into the girder space drainage sumps which have been mentioned heretofore.

The Fire Standpipe System

The height of the building requires the use of one intermediate fire tank and one intermediate fire pump. The intermediate pump of 750 G.P.M. capacity is located on the 20th floor. This pump, using a 5,000 gallon reserve in the combined house and fire tank on the 21st and 22nd floors, augments the supply to the two 8-in. standpipes extending from the 19th to the 43rd floors. The standpipes have hose racks on each floor and also supply roof manifolds on the 37th floor and main roofs. Riser control valves are located approximately every 75 ft. along the standpipe to permit bypassing of any breaks by means of hose.

In the lower section of the building are seven 8-in. standpipes, with hose racks and cabinets on each and every floor. These standpipes are all fed from a main fire line header located in the girder space. To this header are connected 12 siamese, four each on the 49th and 50th street sides of the building, two on Lexington avenue and two on Park avenue. Into the header is also connected the low level fire pump. The low level pump

draws its supply from a 10,000 gallon fire reserve tank which is fed by a separate street service and is also connected to the distribution header mentioned heretofore, to assure its supply.

The Building in General

The new Hotel Waldorf-Astoria is being erected on the site formerly occupied by the old New York Central Y. M. C. A. building, the New York Central power house, and the American Express building. This site occupies an entire block—Park avenue to Lexington avenue, and 49th to 50th streets. The size of the plot is 200 ft. 10 in. on Park and Lexington avenues, and 405 ft. on 49th and 50th streets.

Size of the New Building

The estimated value of the hotel when completed, including land, building and furnishings, is $40,000,000. The new hotel will be 46 stories, with an approximate height of 600 ft. The cubical contents of the building will be in excess of 20,000,000 cubic feet.

There will be 2,253 guest rooms, of which 300 will be parlors. Incidentally, all the rooms are exceptionally large.

There will also be de luxe suites and tower apartments. The tower will contain over 500 de luxe rooms with high ceilings, open fire places and boudoir baths, and follows the standards of the finest Avenue homes.

An unusual feature will be a private driveway and entrance to the hotel for the use of guests, 90 ft. wide and 200 ft. long, running through the center of the building from 50th to 49th streets.

Ballrooms, Lobby, Exhibition Spaces

The main ballroom will be four stories in height, surrounded by three balconies. A large stage 60 ft. wide, complete with the latest in stage equipment, dressing rooms, green room and the like will be at one end. There are three additional ballrooms, each with its separate foyer, in addition to the grand ballroom.

An exhibition space has been provided to take care of the growing demand for displays. A huge elevator will take automobiles, motor boats and other exhibits from the ground floor directly to it. By utilizing the ballrooms, which open into one another, a total exhibition space of 38,000 sq. ft. can be made available.

The lobby of the Waldorf-Astoria will be distinctly different in that it has been designed not to resemble a huge waiting room; while it is of a large area it has been designed to be called "friendly," and the *Peacock Alley* of the old Waldorf has not only been preserved but has been trebled in dimension.

The *Rose Room, Empire Room,* and *Men's Cafe* so well and favorably known in the old Waldorf, are again featured in the new hotel. In addition, there will be a *Savarin Restaurant.*

The Roof Garden

The entire Park avenue front on the 18th, 19th and 20th floors comprise the *Roof Garden;* it will have outside terraces for dining.

The *Roof Garden* will have its own separate kitchen, which will also be located on the 18th floor. Room service kitchens will be located on the 18th floor as well, so that elevators will serve rooms from the 18th floor *down* to the 4th floor and from the 18th floor *up* to the 46th floor.

Private Railroad Siding

One of the unique features of the new Waldorf will be a private railroad siding underneath the hotel. Guests who own private railroad cars, can come directly to the Waldorf-Astoria and disembark alongside a special elevator, which will take them directly to the lobby, *Peacock Alley* or to their suites.

The hotel will be ready for occupancy about the middle of September, 1931.

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Principles of Heat Distribution

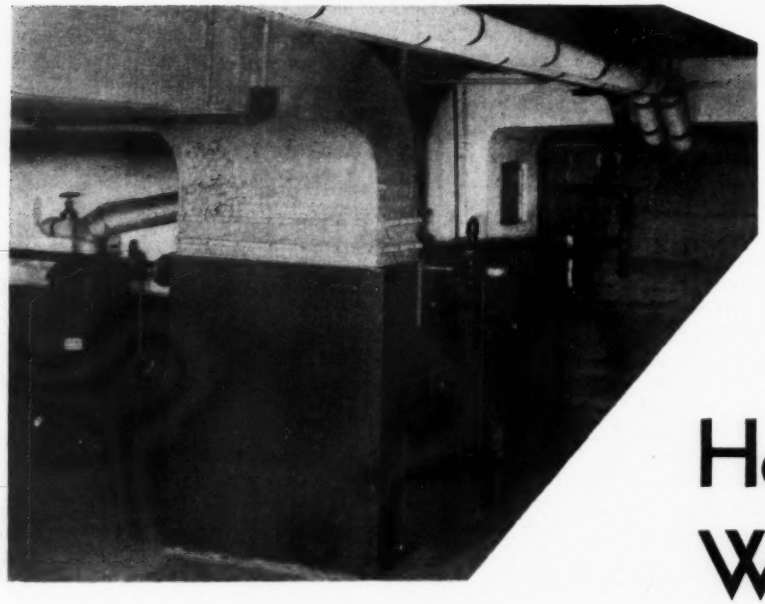
Heat loss is dependent upon the principles which follow: Other things being equal, the tendency toward heat loss inwardly or outwardly through the walls of a building is directly proportionate to the difference in temperature between the inside and the outside. It makes no dfference whether the inside is hot and the outside cold, or if the inside is cold and outside hot,—nature's first effort is to produce equilibrium. There can be no air equilibrium where there are different air temperatures at the same altitude. Neither can there be air equilibrium when there is warmer air below colder air. Effective enclosures must be designed to prevent air equilibrium between the inside and outside. Their primary function, from the standpoint of heat economy, is to block the tendencies toward air equilibrium. Their efficacy is dependent primarily on the perfection of their service in this particular.

Walls, floors, roofs, windows and doors are designed mainly as obstructions to the natural flow of air from inside to outside. They may be effective dams to flow, proportionate to the character of the material and its thickness. Given the same material, loss of heat is proportionate to thickness.

Heat distribution is effected practically on principles which follow: Warm air rises and cold air settles downward because warm air has a lesser specific gravity than cold air. Nature, in so far as air is concerned, is never at complete repose, except when the horizontal stratas of the air are of the same temperature, and the temperatures of the various stratas grade upward uniformly. Heating is made effective practically, through the medium of air circulation; therefore, the laws of air circulation are fundamental to a knowledge of heat economy. These laws are also essential to correct architectural design.

The principal practical factors that are involved in the balance of architectural design and heat economy may be arbitrarily fixed at say seven, which are summarized in the enumeration which follows:

1. Enclosures—walls, floors, roofs, or ceilings, door opening closures and window opening closures. 2. Air supply—infiltration, vent ducts, etc. 3. Nature of occupancy. 4. Location of apparatus—high, low, remote, in the room, etc. 5. Humidity. 6. Shafts—stairs, elevators, rotundas, etc. 7. Esthetic consideration.



Six thousand cubic feet of air at 70 deg. Fahr. and at approximately 45 per cent relative humidity contains about 0.33 lb. of water. This installation is designed to put moisture in the air.

How Much Water Will Air Drink?

By ARA MARCUS DANIELS

As the temperature of air is raised, the capacity of that air to absorb and hold water is increased, with the result that the rate of evaporation is increased. This can be interpreted in terms of human comfort. With normal people, moisture continually is being given off through the pores of the skin. Obviously, this takes place at a normal rate. If external conditions make it impossible for this moisture to be evaporated, it accumulates on the skin and we become sweaty and we are hot and uncomfortable. If it evaporates too quickly, the body gives up too much heat and we feel cold even if the surrounding air temperature is as high as 70 deg. Fahr. The author goes into the question of how much moisture is contained in the air under various conditions.

IF THE temperature of a given quantity of air, with the pressure remaining constant, is increased and no moisture is added as the temperature is raised, the relative humidity, at the higher temperature will be reduced to a great extent.

To appreciate fully how great such a change might be, and to approximate the amount of moisture that should be added to a given quantity of air, if a definite degree of humidity is to be maintained, it is essential that the effect of change in temperature on the volume of air be understood and that, at least, a superficial idea of the properties of air be had.

Dry Air

When air is heated, it expands. Its volume increases. An idea of the change in volume of dry air resulting from a change in temperature may be obtained from the following tabulation in Table 1 for several selected temperatures.

Thus, 1,000 cu. ft. of dry air at a temperature of 32 deg. Fahr., if cooled to 0 deg. Fahr., will contract to 935 cu. ft.; or, 1,000 cu. ft. of dry air at a temperature of 32 deg. Fahr., if heated to 192 deg. Fahr., will expand to 1,326 cu. ft.

Saturated Air

When air is saturated with moisture, the actual weight of a cubic foot of air changes when the temperature changes. If the temperature is lowered, the weight of a cubic foot of this saturated air increases; if the temperature is raised, a cubic foot of air weighs less. The tabulation in Table 2 illustrates how the weight of air, of the vapor mixed with the air and the mixture vary for a cubic foot of the mixture at different temperatures.

If, at 32 deg. Fahr., a quantity of air has a volume of 6,000 cu. ft., what will be the volume of the same quantity of air if it is heated to the following temperatures: 70 deg. Fahr., 132 deg. Fahr., 172 deg. Fahr.

Solution: If, at 32 deg. Fahr., a quantity of air has a volume of 6,000 cu. ft., when heated, its volume will change as follows:

When heated to 70 deg. Fahr.

$$6 \times 1078 \text{ cu. ft.} = 6468 \text{ cu. ft.}$$

When heated to 132 deg Fahr.

$$6 \times 1204 \text{ cu. ft.} = 7224 \text{ cu. ft.}$$

When heated to 172 deg. Fahr.

$$6 \times 1285 \text{ cu. ft.} = 7710 \text{ cu. ft.}$$

What is the difference between the weight of one cu. ft. of saturated air at 0 deg. Fahr. and 100 deg. Fahr.?

Solution: One cu. ft. of saturated air at 0 deg. weighs 0.0863 lb. One cu. ft. of saturated air at 100 deg. weighs 0.0664 lb. Difference = 0.0199 lb.

At which temperature (0 deg. or 100 deg.) does one cu. ft. of saturated air contain the greater quantity of water vapor? State the difference in pounds.

Solution: One cu. ft. of saturated air contains a greater quantity of water vapor at 100 deg. than at 0 deg.

The difference = 0.002769 lb. of water vapor.

Quantity of Water Vapor Present in Air at Any Given Relative Humidity and Temperature

The determination of the relative humidity of air by means of the dry bulb and wet bulb thermometers has been explained. If the relative humidity and dry bulb temperature are known, the actual weight of water vapor present in a cubic foot of air may be calculated from data contained in Table 2 for the temperatures given.

For example, a cubic foot of air at 60 deg. Fahr. contains 0.000830 lb. of water vapor when saturated, or, in other words, when its humidity is 100 per cent; if the humidity was found to be 50 per cent, then the actual quantity of water vapor per cu. ft. of the air would be $0.000830 \times 0.50 = 0.000415$ lb.

A volume of 6000 cu. ft. of air at a temperature of 0 deg. Fahr. and a relative humidity of 70 per cent will therefore contain 6000 (cu. ft.) $\times$ 0.000069 (lb.) $\times$ 0.70 (rel. hum.). = 0.2898 pounds of water vapor.

Problem. How many pounds of water vapor are contained in a volume of 8750 cu. ft. of air if the temperature of the air is 60 deg. Fahr. and the relative humidity is 45 per cent?

Solution: 8750 cu. ft. = volume of air. 60 deg. F. = Temp. of the air. 45 per cent = Relative humidity.

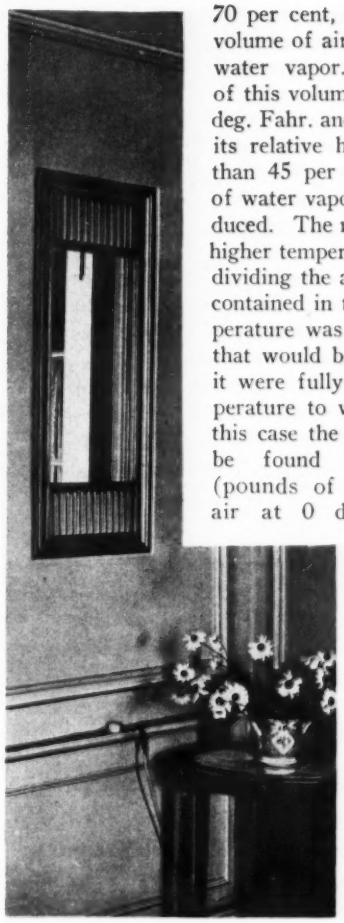
1 cu. ft. of saturated air at 60 deg. Fahr. contains 0.00083 lb. of water vapor at 100 per cent saturation. Therefore, 8750 cu. ft. at 60 deg. Fahr. and 45 per cent relative humidity will contain:

8750 (cu. ft.) $\times$ 0.00083 (lb. @ 100 per cent saturation) $\times$ 0.45 (relative humidity) = 3.268 lb. water vapor.

Effect of Temperature Rise Upon Quantity of Water Vapor Present in Air

If the temperature of a volume of air be raised and no moisture be added, its relative humidity will be lowered.

Consider the volume of 6000 cu. ft. again. At a temperature of 0 deg. Fahr. with a relative humidity of 70 per cent, it was found that this volume of air contains 0.2898 lb. of water vapor. If the temperature of this volume of air is raised to 70 deg. Fahr. and no moisture is added, its relative humidity will be lower than 45 per cent and the quantity of water vapor contained will be reduced. The relative humidity at the higher temperature may be found by dividing the amount of water vapor contained in the air before the temperature was raised by the amount that would be present in the air if it were fully saturated at the temperature to which it is raised. In this case the relative humidity may be found by dividing 0.2898 (pounds of water vapor in the air at 0 deg. Fahr.) by the amount of water vapor that would be present if the air at 70 deg. Fahr. were fully saturated.



The public demand for equipment designed to maintain correct humidity conditions in the home is on the increase. It presents an opportunity for the contractor to extend his service.

By Table 2, one cu. ft. of air at 70 deg. Fahr. contains 0.001153 lb. of water vapor. Consequently, if the 6,000 cu. ft. under consideration was fully saturated the actual total weight of water vapor present would be $6000 \times 0.001153 = 6.9180$ lb. for 100 per cent saturation. But, since no moisture was added during the raising of the temperature, the relation of 0.2898 to 6.9180 represents the proportional part present to that of complete saturation or, $0.2898 \div 6.9180 = 0.0419$, which multiplied by 100, to express it as per cent relative humidity, shows that, whereas the vapor present in the 6000 cu. ft. of air at 0 deg. Fahr. was sufficient to show a relative humidity of 70 per cent, yet, at the higher temperature, it is sufficient to represent a relative humidity of only 4.19 per cent—conclusive proof that when the temperature of air is raised, it is absolutely necessary that moisture be added in order to avoid the ill effects of a too-dry air.

Problem: How many pounds of water vapor are contained in a volume of 7100 cu. ft. of air if the temperature of the air is 32 deg. Fahr. and the relative humidity is 55 per cent?

Solution: At 32 deg. Fahr. one cu. ft. of saturated air contains 0.000304 lb. of water vapor.

Therefore, 7100 (cu. ft.) $\times$ 0.000304 (lb.) = 2.1584 lb. = water vapor content if the volume of air was fully saturated.

At 55 per cent relative humidity, the water vapor content = $2.1584 \times 0.55 = 1.187$ lb.

Table 1
Effect of Change of Temperature Upon Volume of Dry Air

1,000 cu. ft. of dry air at 32 deg. Fahr. under an atmosphere pressure, changes to

Cu. Ft.		Deg. Fahr
935	at	0
1,057	at	60
1,078	at	70
1,139	at	100
1,204	at	132
1,285	at	172
1,326	at	192
1,347	at	202

Problem: What will be the relative humidity of the quantity of air noted in the foregoing problem if the temperature is raised to 100 deg. Fahr. and no moisture is added?

Solution: At 100 deg. Fahr. one cu. ft. of air fully saturated contains, 0.002848 lb. of water vapor. Therefore, 7100 cu. ft. fully saturated at 100 deg. Fahr. contains 7100×0.002848 lb. $= 20.2208$ lb. water vapor.

Relative humidity is the ratio of the amount of water vapor actually contained in a given quantity of air to the amount which that quantity of air is capable of containing in a saturated condition at the same temperature. It may be found by dividing the amount of water vapor contained in the air by the amount which would be present in the air if it were fully saturated, the temperature and volume remaining constant. This is expressed in percent and the ratio in all cases is less than one.

At 32 deg. Fahr., the air contained 1.187 lb. water vapor.

At 100 deg. Fahr., if fully saturated, the air would contain 20.2208 lb. water vapor. Since no moisture is added as the temperature is raised, at 100 deg. Fahr., the relative humidity of the air will be:

$1.187 \div 20.2208 = 0.0587$.

$0.0587 \times 100 = 5.87$ per cent relative humidity.

Quantity of Moisture Required for Evaporation in Order to Maintain a Given Relative Humidity

Assume that a quantity of air that is brought into a residence from the outside at a temperature of 32 deg. Fahr., passed through the heater and delivered from the grilles at a temperature of 172 deg. Fahr. has a volume of 9,000 cu. ft. The room temperature is to be maintained at 70 deg. Fahr. The outside air, at 32 deg. Fahr., has a relative humidity of 50 per cent. How much more moisture must be added in order that the relative humidity in the room may be maintained at 45 per cent?

Effect of Change of Temperature Upon Volume of Air Required for Heating

It is necessary first to determine what the volume of this air will be at the room temperature of 70 deg. Fahr. and at 32 deg. Fahr. (the temperature at which it enters the heater).

This may be done as follows:

First: To the room temperature, add 460 deg.
460 deg. plus 70 deg. $= 530$ deg.

Second: To the grille air temperature, add 460 deg.
460 deg. plus 172 deg. $= 632$ deg.

Third: Divide result FIRST by result SECOND
$530 \div 632 = 0.838$.

Fourth: Multiply the quantity of air in cu. ft. required, by result THIRD and obtain the volume of the 9,000 cu. ft. of air which was delivered at the grille after it has cooled to the room temperature of 70 deg.
$9000 \times 0.838 = 7542$ cu. ft.

In a similar manner, the volume of this same air at 32 deg. Fahr. is found.

First: 460 deg. plus 32 deg. $= 492$ deg.

Second: 460 deg. plus 172 deg. $= 632$ deg.

Third: $492 \div 632$ deg. $= 0.779$

Fourth: $9000 \times 0.779 = 7011$ cu. ft. as the volume at 32 deg. Fahr.

Moisture Required for Desired Relative Humidity

The next step is to determine the total moisture required in the quantity of air when its temperature is that of the room (70 deg. Fahr.) and its relative humidity is 45 per cent. By Table 2, one cu. ft. of air at 70 deg. Fahr. contains 0.001153 lb. of water vapor when saturated and 0.001153×0.45 or 0.0005189 lb. at a relative humidity of 45 per cent. Therefore, the total amount of moisture required in the air $= 7542 \times 0.0005189 =$ 3.913 lb. per hour.

There was a certain quantity of moisture in the air at 32 deg. Fahr. and this may be determined in a similar manner as follows:

Lb. of water in 1 cu. ft. of saturated air at 32 deg. Fahr. $= 0.000304$.

At 50 per cent relative humidity, each cu. ft. contained $0.000304 \times 0.50 = 0.000152$ lb. and the total quantity at 32 deg. Fahr. contained $7011 \times 0.000152 = 1.066$ lb. of water.

Therefore, the quantity of water to be added will be $3.913 - 1.066 = 2.847$ lb. per hour.

This is equivalent to $24 \times 2.847 = 68.328$ lb. per day of 24 hours and is equivalent to $68.328 \div 8.33 = 8.20$ or more than 8 gallons per 24 hours.

Problem: Assume that 12,000 cu. ft. of air are required to be delivered from the registers at 172 deg. Fahr. for heating a residence. The cold air supply consists entirely of outside air, the temperature of which is 0 deg. Fahr. The outside air has a relative humidity of 60 per cent. The room temperature is to be maintained at 70 deg. Fahr. How much moisture must be added in 24 hours in order that the relative humidity in the room may be maintained at 45 per cent?

Table 2
Effect of Change of Temperature Upon Weight of Mixtures of Air Saturated With Vapor

At 32 deg. Fahr., a cu. ft. of the mixture weighs 0.080504 lb. and is composed of 0.0802 lb. of air and 0.000304 lb. of vapor.

Temp. Deg. Fahr.	Relations at Other Temperatures for One Cu. Ft. of the Mixture. Weight of the Air in Lb.	Weight of the Vapor in Lb.	Weight of the Mixture in Lb.
0	0.0863	0.000069	0.086369
32	0.0802	0.000304	0.080504
60	0.0751	0.000830	0.075930
70	0.0731	0.001153	0.074253
100	0.0664	0.002848	0.069248
132	0.0564	0.006687	0.063987
172	0.0360	0.016814	0.052814
192	0.0205	0.025371	0.045871
202	0.0109	0.030714	0.041714

Solution:

Volume of air at registers	=	12000 cu. ft.
Register air temperature	=	172 deg. F.
Room temperature	=	70 deg. F.
Outside Air Temperature	=	0 deg. F.
Outside Relative Humidity	=	60 per cent
Inside Relative Humidity to be maintained	=	40 per cent

Volume of air at the room temperature (70 deg. Fahr.)

(Continued on Page 73)

Rating Stoker Fired Boilers

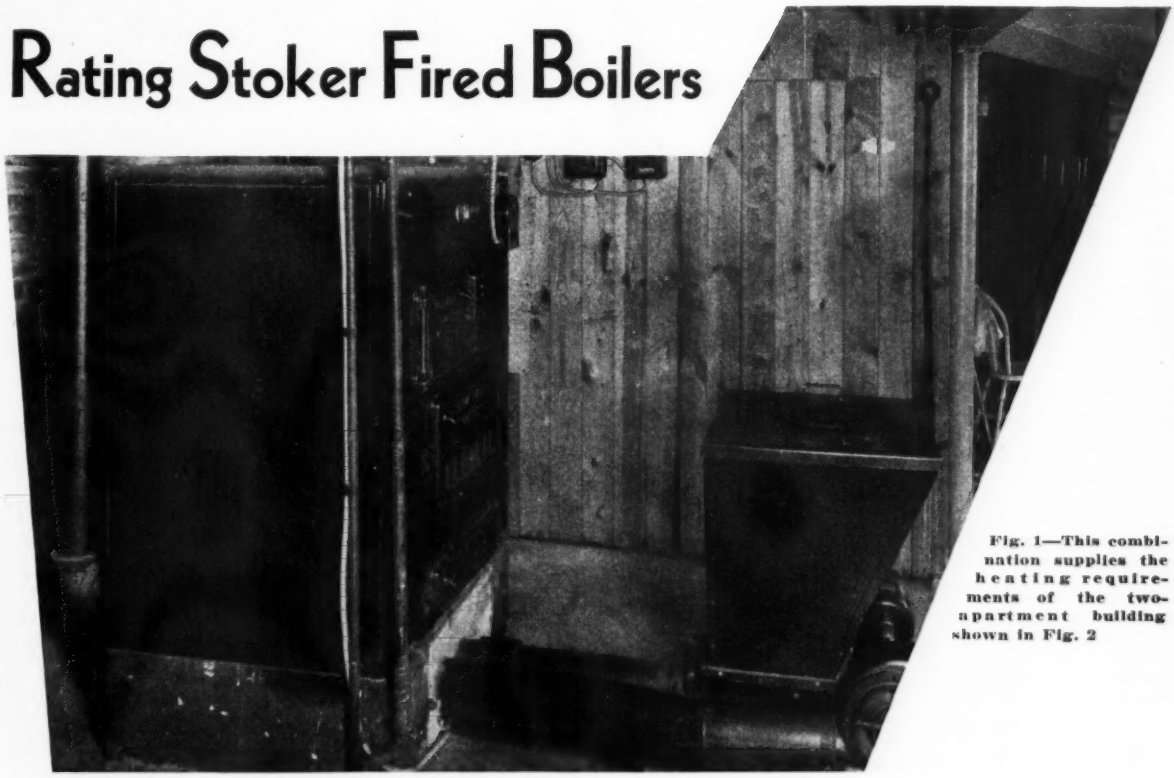


Fig. 1—This combination supplies the heating requirements of the two-apartment building shown in Fig. 2

This article is one indication of the steps which are being taken, by heating contractors and boiler manufacturers, to insure the correct application and installation of stokers in boilers and heating systems originally designed for manual operation.

RECENTLY, the board of directors of the Heating and Piping Contractors National Association met in Pittsburgh, and at the conclusion of the regular meeting a conference was held with a number of boiler manufacturers. The discussion, among other things, had to do with the application of mechanical stokers to heating systems. Harry Hart of Chicago, W. W. Hubbard of New York, and Walter Rhoton of Cleveland represented the heating contractors as members of the Association's committee on boiler output. The conference was designated as another step toward providing certified heating associations with complete data on the firing of all types of boilers.

More recently, Mr. Hart delivered a paper before the annual convention of the Heating and Piping Contractors' Wisconsin Association on the subject of heating boiler selection and discussed the demands on a heating boiler which he listed as, first, net load; second, design load; third, maximum load; fourth, average load; and, fifth, minimum load. He pointed out that to date there is no accepted standard for testing an automatic stoker-fired boiler and no accepted standard for rating mechanical stokers. Furthermore, he said that while a considerable amount of thought is being given to this question, it is not yet considered advisable to make any change on the net load recommendations of the Association when a mechanical stoker is applied to a boiler that is designed for hand firing.

A part of the discussion engaged in at the aforementioned Pittsburgh meeting is contained in the following paper, which was prepared by an engineer of a large manufacturing concern.

The operation and general performance of the hand fired and the stoker fired boiler are different. In the hand fired boiler the fuel charging and ash removal are accomplished manually. With the stoker fired boiler, the charging of the fuel and sometimes the removal of the ash are done mechanically. Hand fired boilers are

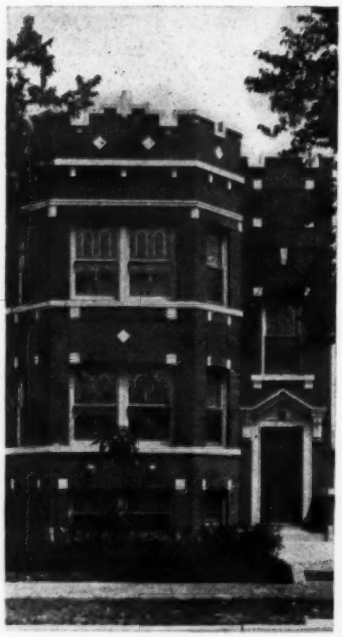


Fig. 2—The two-story building shown above is heated with the stoker and boiler illustrated on the preceding page

Fig. 3—Right. This building located in Chicago, contains the stoker and heating equipment seen in Fig. 4

usually dependent on performance with natural draft, while stoker fired boilers are generally dependent upon performance with forced draft. In both cases the same boiler may be used, the difference being only in the additional mechanical stoker and draft devices, and sometimes special grates used in the stoker fired boiler.

The combustion performance therefore differs with the two types of heating boiler installations. Whereas, with the hand fired boiler, relatively large amounts of fuel are charged periodically, in the case of the stoker fired boiler the fuel is charged at a continual uniform rate. The latter method of firing permits the possibility of a continual uniform boiler output delivery, which is not the case with the hand fired boiler unless constantly attended and fired with small fuel charges. The stoker fired boiler generally permits higher combustion rates, due to the forced draft, than can be conveniently obtained with hand fired boilers using natural draft.

"Mechanical stokers are quite generally designed to burn the cheaper grades of coal and to do this efficiently and smokelessly requires ample and properly designed combustion space. This in itself is often the limiting factor on boiler output. Here there are no accepted standards, although 1.5 cubic feet of combustion space per boiler horsepower has been suggested and has been adopted by the Chicago Smoke Prevention Department."—Harry M. Hart, Chicago

The Rating Problem

The assigning of a rating or selection value for a stoker fired boiler offers a problem which is somewhat more involved than is the case for a hand fired boiler. In the latter case, the combustion characteristics of the various fuels used must be considered, while with the stoker fired boiler not only the fuels but also the performance of the various kinds of stokers must be considered. The resultant performance obtained with a given boiler and one make of stoker burning a given fuel may be entirely different than that obtained with the same boiler and fuel used in connection with a different stoker.

Rating the Stoker Fired Boiler

As a result of the above, it appears that the only practical method of assigning a rating or selection value to a stoker fired boiler is for the boiler manufacturer to determine the maximum boiler output that can be capably delivered at the boiler nozzle with the steam or water outlets cataloged. This output may be limited by the steam disengaging area (priming) or other characteristics of the boiler. Using the maximum boiler output as the starting point, it is recommended that the maximum rating of selection value is based on a value 35 per cent below the capable maximum boiler output.

The draft required is influenced by the kind, size and depth of fuel, combustion rate, grates used, the amount of air used per pound of coal burned and the size and length of boiler flues

Such a method of rating or selection will give at once the maximum selection value based on the sum of the following:

A. The estimated heat emission Btu. per hour of the connected radiation, direct, indirect, or both.
B. The estimated maximum heat in Btu. per hour required to supply water heaters or other apparatus to be connected to the boiler or boilers.
C. The estimated heat loss in Btu. per hour of the piping connecting radiation and other apparatus with the boiler or boilers.

This method permits the selection of a stoker fired boiler that is not only capable of handling the boiler load as indicated by A, B and C, but also allows a margin of 25 per cent to take care of the pickup load, which should be ample for a continuous fired boiler installation. In addition to the above, there is also an allowance of 25 per cent as a margin of safety.

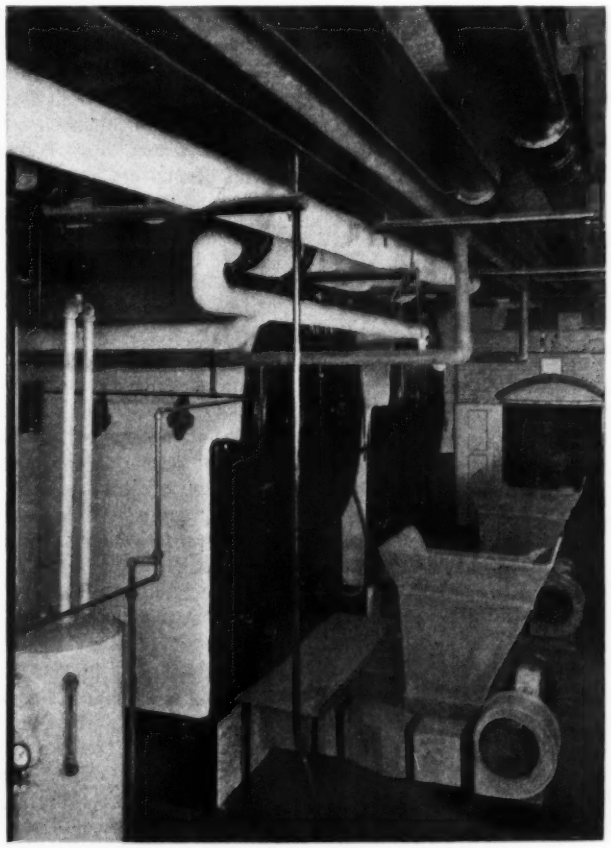


Fig. 4—This stoker installation is installed in the building shown in Fig. 3. From these views alone, the wide range of stoker application is apparent

Draft Requirements and Chimney

The boiler manufacturer cannot give draft data for stoker equipped boilers that will be of general utility. This is due to the variable draft obtained with the various fuels in use. Since the boiler manufacturer also has no control over the type of stoker equipment used in his boilers and the amount of excess air used per pound of coal (determined from stack gas and coal analysis) it is impossible for the boiler manufacturer to offer draft data. The draft required is influenced by the kind, size and depth of fuel, combustion rate, grates used, the amount of air used per pound of coal burned and the size and length of boiler flues. Of the above enumerated items, the boiler manufacturer has control only over the size and length of the boiler flues.

In general, the function of the chimney in a stoker fired installation is merely that of a duct to convey the gases of combustion from the building and not necessarily that of furnishing the draft requirements

It is the problem of the stoker representative to assign the chimney size and height required for each stoker fired boiler installation since as above indicated each and every installation is a distinctively different problem. The boiler manufacturer should specify the size of the smoke outlet connection on each boiler. In general, the function of the chimney in a stoker fired installation is merely that of a duct to convey the gases of combustion from the building and not necessarily that of furnishing the draft requirements.

"The contractor should vigorously protest against the installation of any equipment used in connection with his contract which is not approved by him," says J. J. HAYES in his article —

The Co-ordination of Heating Plant Equipment

THE remodeling of obsolete heating plants now has become a very important part of the heating contracting business. In fact, comparatively little new work has been figured due to the scarcity of building projects. Therefore, much time has been devoted to the search for remodeling jobs. This policy is one which has been advocated for many months past and the results of such efforts usually have been a profit for the contractor and an improved heating plant for the owner.

However, at the risk of being accused of forcing an old platitude on a patient reader, remember that "Haste Makes Waste." This applies especially to the modernization of an obsolete heating plant. Difficulties frequently arise due, not only to a hasty survey of the project, but also to the misapplication of the many modern heating devices to the existing plant. Trouble, due to the latter cause, undoubtedly is encountered most often, and usually by the nature of the situation the contractor is held responsible.

The following actual experiences recently encountered illustrate the trouble met, due both to a hasty survey of the job, and also to a faulty application of the heating apparatus.

"A mean trouble job was encountered due entirely to insufficient preliminary investigation of the problem at hand. In addition to the owner becoming disgusted with the job, the difficulties made it impossible to remodel the system as promised."

The owner of a large apartment building, which dated back to 1892, in his struggle to hold his tenants, found it necessary to modernize the heating plant as a first step towards bringing the building up to date. The original plant consisted of two high pressure boilers, an engine and generator, and a gravity down-feed system using exhaust steam. A steam driven boiler feed pump and receiver returned the condensate to the boilers. The engine and generator had been supplanted by a central station power plant some years ago. The boilers continued to operate at forty pounds pressure to supply the condensate pump with sufficient energy. The exhaust from the pump, plus live steam, was used for heating with more or less satisfactory results for some years.

Recently the owner heard considerable talk regarding the merits of the modern vacuum heating system. He called upon his neighbor, the heating contractor, who made a preliminary inspection of the job. The steam left the boiler room and passed to the attic main through a single up-feed riser. The attic main distributed it to twelve down-feed risers and from there it passed to the radiation which consisted of single pipe column radiators with air valves. Fig. 1 shows a diagrammatical sketch of this plant.

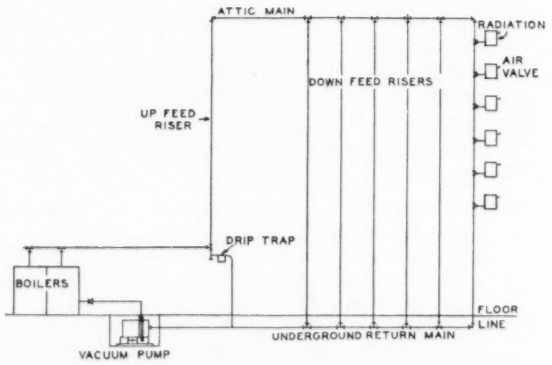


Fig. 1.—This is a down-feed heating system which the owner wished to remodel into a vacuum heating system

The contractor recognized the difficulties and expense which would be involved in changing such a system from a single pipe gravity job to a two-pipe return-line vacuum system. But at the same time wished to follow the path of least resistance and sell a vacuum pump to the customer who was already half sold on the idea.

He, therefore, suggested that the steam condensate pump be replaced with an automatic electric vacuum and boiler feed pump. He hoped to obtain a more rapid circulation of steam through the down-feed risers, and a prompt return of the hot condensate to the boiler.

A pump of suitable capacity was installed. The discharge pressure selected was ten pounds. The underground return mains pitched towards the pump which was placed in a pit in the boiler room. On the first test, ten pounds steam pressure failed to deliver steam to the main floor radiators. Fifteen pounds boiler pressure was found necessary to produce a satisfactory circulation, but to the disgust of the contractor and the owner, the receiving tank of the vacuum pump became so hot that not one inch of vacuum could be raised. At that late date it was then discovered that the bottoms of the down-feed risers were not supplied with traps. Either of two remedies for the trouble could be tried. First, the vacuum pump could be replaced with an electric con-

densation pump and receiver for twenty pounds discharge pressure; or, pits could be excavated under the floor to reach the ends of the risers and traps installed. If the latter step were taken, the vacuum pump still would have to be changed from a ten pound unit to one which would discharge against twenty pounds boiler pressure. The owners finally decided on the first and cheaper method and abandoned the vacuum idea entirely. This was a mean trouble job due entirely to insufficient preliminary investigation of the problem at hand.

Here a problem in balancing a vacuum heating system resulted from the owner changing his mind as to the type of heating system he wanted after most of the work outlined in the original plan had been installed.

Another case of quite a different nature involved a steamfitter in difficulties for which he could not at all be blamed. His contract called for the installation of a vacuum heating system in a large four story building over a city block in length and half as wide, with a total heating load of about sixty-five thousand square feet of radiation.

An excavated boiler room was located at one end of the building. Steam was generated in three low pressure boilers and was fed to the system through a steam main in a tunnel which ran the whole length of the building, about three hundred feet. Ten branch mains were taken off of this main to supply ten wings of the building. The return mains from each of the ten sections joined into a common return in the tunnel running parallel to the steam main. The condensate flowed to two electric vacuum and low pressure boiler feed pumps in the boiler room. Fig. 2 shows a diagram of this piping.

The architect's original plans and specifications called for a uniform steam pressure over all sections of the entire building. By the time the equipment was almost entirely installed, the owner decided that he would like to try a zone-controlled system. The contractor was ordered to install pressure reducing valves, controlled by individual thermostats, in each of the ten branch mains. A thermostat was installed in a key-room in each section and was arranged to open or close the pressure reducing valve serving that section as the demand for heat varied throughout the day.

During the first test numerous difficulties were encountered. The most serious one was the alarming rate at which the boilers would lose water. It seemed utterly impossible to balance this system. First, make-up water had to be added to the boilers; then a short time later excess water had to be blown to the sewer. The vacuum pump was able to hold eight or ten inches on the return main, but still the condensate did not return to the pump fast enough to feed the boilers. Then suddenly it would return in a flood. During this time tenants in the sections of the building farthest from the boiler plant complained of a severe water hammer in the branch main.

A solution to the trouble was finally found by placing a compound pressure and vacuum gauge on the low side of the pressure reducing valve in the branch steam main farthest from the boiler. Five minutes after this pressure reducing valve was closed by the thermostat, an induced vacuum of 14 in. was built up in this steam main

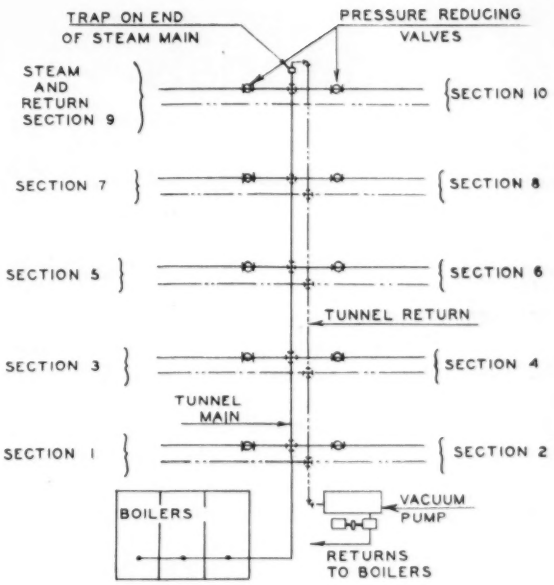


Fig. 2.—On this vacuum job, the condensate flowed to two electric vacuum and low pressure boiler feed pumps in the boiler room

and in all the radiation of that section. This high induced vacuum not only prevented condensation from this section from flowing back to the pump, but it actually pulled condensation from the adjacent section through the common return in the tunnel up as high as the second floor.

The problem was then either to prevent the formation of the induced vacuum, or to rebuild the complete system of return piping, supplying separate returns from each section of the building. The final decision was to place a 1-in. by-pass around each pressure reducing valve and bleed a little steam in the low side at all times. Check valves were also installed in each branch return in the tunnel. By these methods a proper balance was established.

The readiness with which the average building owner listens to the advice of a friend, rather than to the rec-

Oil burners must be installed as a part of the entire and co-ordinated heating plant. They should not be installed as units complete in themselves if trouble is to be avoided.

ommendations of the contractor, often involves both in serious difficulties. During the last heating season one of our churches decided to construct a small addition. The original plant consisted of one cast iron sectional boiler supplying a two pipe vacuum system. The condensate was returned to the boiler by an electric vacuum and low pressure boiler feed pump. The boiler was coal fired.

When the church addition was started, the contractor was called in by the building committee to estimate on the work. It was to include an additional boiler with the necessary radiation. The vacuum pump was of sufficient size to handle the additional load. A contract was signed and the work got under way. At this point, one

(Continued on Page 149)

Editorials

Looking Up

THERE are two things on which those who are studying business conditions —from a practical angle—are inclined to place some confidence as making for better business conditions.

The first factor considered in this favorable light comes out of our own industry, and is the fact that residential building in February showed an increase over the same month of a previous year for the first time in twenty-eight months. The increase amounted to 8.9 per cent.

A spokesman of the industry told those attending a recent meeting of the Central Supply Association that it was the experience of his own company that this factor—residential building—and their own production levels have been closely parallel for the past twenty-five years. So that, as a present indication, the upturn in residential building may be accepted as a favorable portent.

The other factor is stressed by a business executive outside our industry. On the basis of charts which go back as far as 1884, this executive shows that money rates exert an influence on the general trend of business. When they reach a peak, the tendency is for business activity to let down, because of the cost of money. When the rates for money reach a low point—as they now have—his charts show that a business revival follows.

Of course, there is always a "drag" between the low point in money rates and the upturn, so that this last factor is nothing more than a rough indicator. But if residential building continues to improve, plumbing and heating orders must continue to improve. There's a direct relationship there.

Building Finance

ONE of the problems which will face our contractors as the building industry's volume of business grows—as it must of course—will be the old one of finance as related to building.

So bad were the conditions under which the financing of new structures was handled, that President Hoover has stressed the need for a study of the practices in home financing. What has happened to some extent was the taking of unwarranted profits out of home financing, until the building industry suffered. There is a limit beyond which people can not pay. When that limit is reached, they stop buying.

We believe that whatever the present committee on home building does, should be followed carefully by the plumbing and heating industry. And whatever is developed should be relayed from the national body to every member so that he may protect himself against the losses, not only in business volume, but the actual money loss on jobs where overcharges on financing results in a deficit that is passed on to the sub-contractors.

There is no question that building is going forward. We do not believe that the organizations which represent our contractors can undertake work more important to the welfare of the latter, than is represented by this type of service. These unsound practices within the building industry are making it easier for outside competition.

If the national contractor organizations can work effectively on codes, on merchandising, on general contractor relationships and on this matter of financing, we believe that other problems will take care of themselves. Because an organization that shows itself capable in matters as fundamental as these will not have to worry about rough handling from either outside or inside competition.

Retail Selling

WITHOUT question, the emphasis from now on is going to be on selling. The last meeting of the Central Supply Association indicated that the men in attendance were going to show a greater interest than ever in those contractors who have developed effective merchandising plans —and are going to help those contractors more than ever before.

Whatever a contractor's viewpoint—however much he may miss the "good old days" of big contracts (at a loss)—it would be well for him to make up his mind to study selling. For the methods being developed to sell remodeling are going to be used on new work, when new work commences to gain in volume. Now, and for the future, the call is for salesmanship.

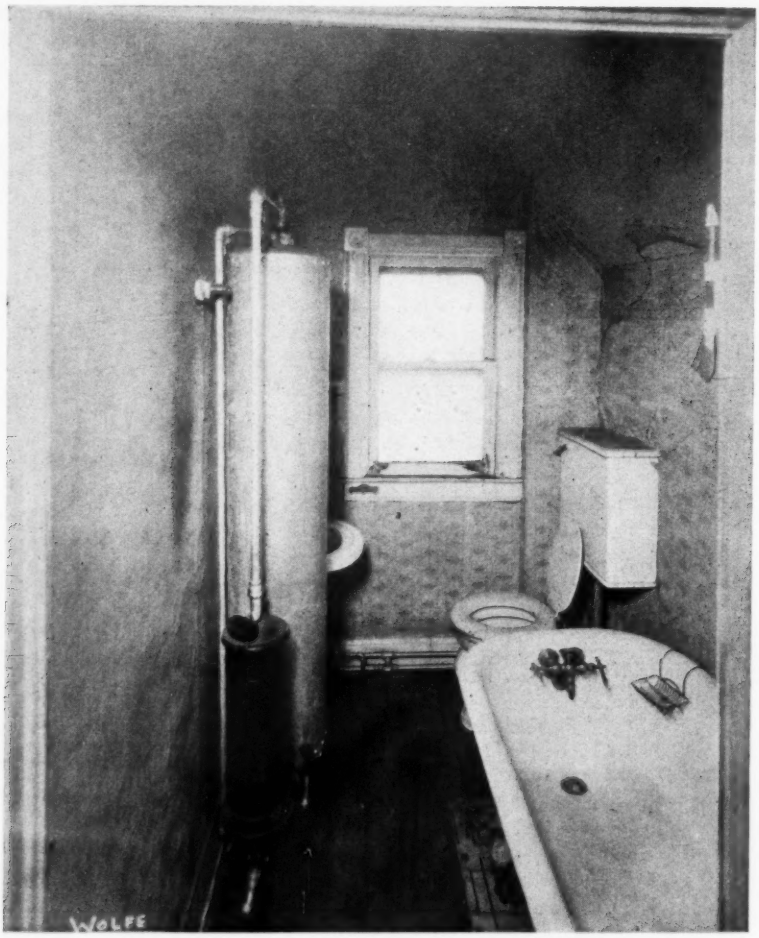
We believe that this also is true—that more and more the contractor who handles larger types of jobs is going to find that he will profit by some organized plan of selling. We have referred before to the case of a contractor who got a preference of a little better than $50,000 on a big job as the result of sound selling. That same contractor—and others in his class—know the value of the proper contacts, undertaken over a period of time, as against the hasty rushing in as just one of a number of contractors when there is a job to be let. Sales contacts over a period of time when only small services are being rendered, occasional presentations of the contractor's conception of what he has to offer—these give him an opportunity to meet those who have a big job to let as an individual representing a firm that stands out from the group that bids habitually on such types of work.

PLUMBING & HEATING MERCHANDISING

A review of the merchandising activities of plumbing and heating contractors

PART IV

Selling Plumbing and Heating to the Farmer



This type of bathroom will no longer satisfy the progressive American farmer

They Sell Farm and Rural Homes

Contractors in small communities show aggressive merchandising ability in selling plumbing and heating equipment

THE application of the type of merchandising plans described from issue to issue in this feature section to the problem of selling the farmer has, for the most part, been done by the plumbing and heating contractor in the small town. It is to the credit of these contractors that they have done a very good job of it. The review of farm merchandising ideas in the following pages is made up of material which we have published from time to time.

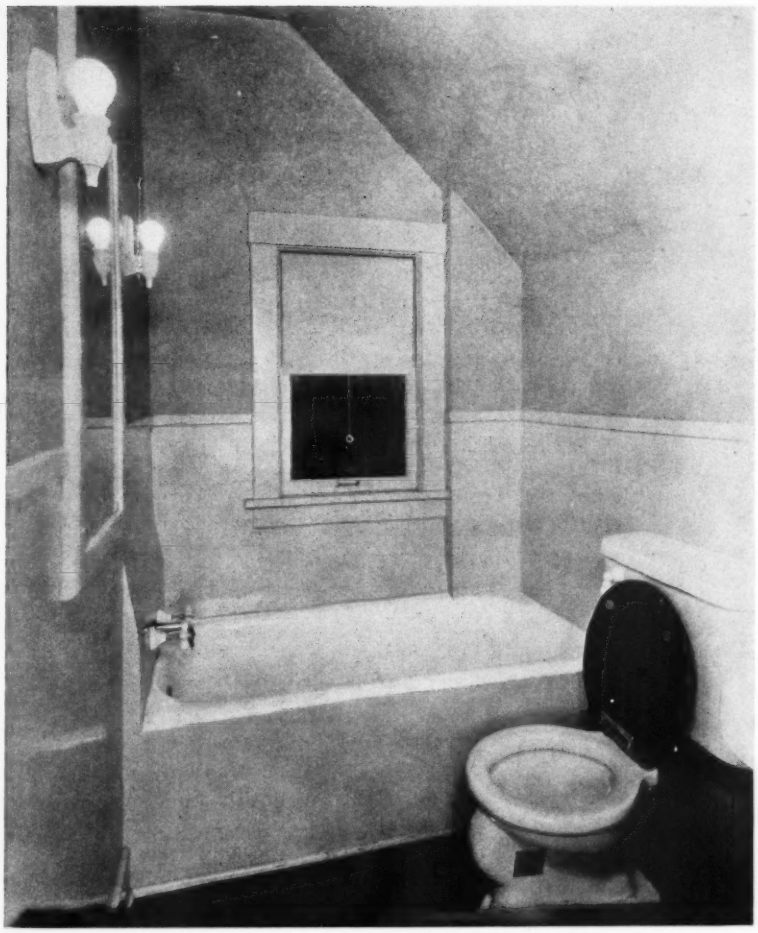
It may be well, first, to quote some figures compiled by the General Federation of Women's Clubs. According to this survey, only thirty-three in every hundred farms out of 40,000 on which reports were available have water piped into the kitchen and over a kitchen sink. Forty-seven out of every hundred homes have it piped only as far as the back porch or to some other point near, but outside, the farm house.

The Federation in commenting on the survey, said that the distinction between having the water piped to and into the farm house represents the difference between complete relief from carrying water in and out of the kitchen many times every day, and the partial relief of carrying it into the house from a short instead of a long distance.

It was also pointed out—and this is an idea that the plumbing contractor can use in pushing the sale of proper plumbing equipment on the farm—that the largest proportion of deaths from typhoid fever in the United States is in the rural districts and small towns, where it is due to lack of proper facilities.

Demonstration Necessary in Farm Selling

From all of those contractors whose methods of merchandising to the farm we have described, comes the unanimous statement that it is necessary to carry the selling right



This is a farm bathroom after remodeling. The farm horizon has lifted considerably, and farm homes are being improved

to the farm; and, further, to demonstrate the equipment that is to be sold.

For example, this is what C. W. Hadan of Bennington, Nebraska, has to say: "The business is there if you go out after it, but the selling end is different in the country. Most city people see good plumbing in display windows or in their neighbors' homes so they accept it as a matter of course. Country people must be shown. The farmer has to create his own environment. He can not get water pressure from the city mains, and he has no sewer close by to which he can connect. He has given these matters little thought and the lack of water under pressure is the 'sticker.'

"I found that to get farm business, I had to know how to meet all kinds of conditions. Sometimes it was an attic tank that was needed, sometimes a storage tank on a hill, a pneumatic tank in the basement or with the head in the well pit. Or an automatic electric system was the thing. Sewage disposal must also be looked after, and many of my customers do not understand the septic tank. When we have solved the water supply and sewage disposal problems, the rest is not so hard.

"I find that the average farm owner knows very little about modern installations, and before a desire for them can be created, he must be shown what can be done, what the first cost and cost of operation will be. Many dealers seem to take for granted that every one knows all about these life-saving appliances, and for this reason they are not selling in the rural districts as they should."

That Mr. Hadan actually puts his sales philosophy into practice may be judged from a remark of one of his customers, who said: "Why, that kid came out here and told me how to fix the whole works and how much it would cost; so I just gave him the job."

It will be noticed that in his newspaper advertising, Mr. Hadan makes a simple, practical and direct appeal in which he states the problem which he stands ready to solve.

But, as Mr. Hadan said: "Burning gasoline and wearing out tires has gotten most of my business." He speaks of lining up four jobs in three days by stopping to see prospects "in spare moments." Mr. Hadan took his selling tip from what he saw happening around him. 'I began to think several years ago," he said, "when farmers began buying good cars, expensive radios, power washing machines and phonographs. The car salesman did not wait for his customers to come to him. The washing machine dealer loaded his machine on a truck and demonstrated it to the farm wife; so I got on the band wagon and did the same thing."

Mr. Hadan's experience indicates to him that there is a good market for steam and hot water installations in farm homes. Colored ware in plumbing, water softeners, and other quality products are being pushed by this progressive master.

Constant Selling Is Necessary

"You can't sell plumbing without water," says H. F. Oekel, head of the

firm of Oekel & Sons of Morton, Ill., in speaking of the possibilities of farm sales. It may be an obvious statement; but as an obstacle to the sale of more plumbing fixtures to the farmer stands the fact that there are still thousands of farm homes without anything better than a hand pump in the sink. And, following plumbing sales, Mr. Oekel believes in getting radiator heat into the farm home. Here, again, of course, is an improvement which must wait upon the introduction of an adequate water supply.

It is obvious from Mr. Oekel's experience that farm selling must be a matter of rather constant selling. It is not often that an entire plumbing job can be secured at one time. First will come some sort of temporary water system, then comes an automatic system, then come the fixtures, often one by one, and the heating plant.

Knowing the needs of his customers, Mr. Oekel must thus be ready to merely rough in a plumbing job where necessary, following it up as opportunity offers. Jobs will develop in surprising ways. On one occasion—and this recognition of possible opportunity is an important factor—he saw a remodeling job being done on a farm home. He dropped in to call on the people who lived there, whom he did not know personally. But he discovered that these people remembered a booth which he had the year before during the county fair, so he was off to a good start.

The net result of this "dropping in" was a pump sale, a septic tank and complete fixtures for the house. Of course, they weren't ready to take on the whole job, so Mr. Oekel suggested roughing in. They wanted a set-in tub. And that, of course, had to be brought out and set in place so the plastering job could be finished. Ultimately, having at first wanted a lavatory in the kitchen, the lady of the house took an electric dish washer.

A DOMESTIC ENGINEERING representative accompanied Mr. Oekel to see a farm job between Morton and Peoria, about which the contractor was enthusiastic. It started last year with the usual installation of the pumping equipment. Then came a job for the milk house, then the house fixtures—and finally the installation of the system of individual drinking cups in the cow barn, of the type shown on Page 52 of this section. And the results of that installation have put into Mr. Oekel's hands selling arguments which, it would seem, will be unbeatable.

Water...

Why carry it when you can have it piped anywhere? There are many different ways of having water pressure on the farm. The most common among these is the "cistern on the hill," which is an ideal system. But if you haven't a hill, we can show you how to have water pressure by several other methods equally as practical and at no more cost, and often at only about one-half the cost of a cistern on the hill.

Feel free to call on us. You are not obligated in the least for this service.

C. W. HADAN

PLUMBING - HEATING - ELECTRICAL

Bennington, Nebr. **Telephone 6**

A newspaper advertisement that will go straight to the heart of the farm wife. It helps Mr. Hadan sell

Value of Water on Farm

Conversation with the herder for this dairy farm developed the kind of selling data which may be used as indicating to the farmer the need and value of a proper water supply for his cattle. The herder pointed to a fine Holstein, a prize-winner: "Last year," he said, "she gave 25,358 pounds of milk, 1,203 pounds of butter. And water did it!" He included the sweep of the barn in a motion of his arm. "During all of January not one of those cows was out of this barn. Still we had a better yield than ever."

The two photographs reproduced show how, in cold weather, it is likely that those animals which can not get to the trough before they are thoroughly chilled, may go back into the barn without the necessary water; with the drinking system installed in the barn, there is no need to turn them out.

Personal Calls Sell Farmers

Worsfold and Hawvermale, Inc., of Nyack, New York, find it highly profitable to push the sale of water systems to farmers and people living in outlying districts.

"We do not wait for water system business to come to us," explained Mr. Hawvermale, "but keep three men on the outside continually digging it up. These men are supplied with manufacturers' sales stimulators and are also trained to talk intelligently on water systems. There are two strong selling appeals attached to this merchandise—one is sanitation and the other is convenience. In these days of the radio, electrical appliance, airplane and auto, the folks living in rural and outlying communities are no longer satisfied with old-fashioned water carrying methods.

"Of course, our outside men do not make sales the first time they

This copy was part of an account book presented to farm owners by this firm of plumbing contractors. Here is a complete argument for adequate water supply

Many farmers are living "way out in the country" but still enjoy many of the conveniences and labor saving devices of the city.

THINK THIS OVER!

You can now have running water in every part of your house and a plentiful supply in every farm yard building.

IT WILL SAVE LABOR

It is a waste of vitality to have your family pumping and carrying water for their daily needs when modern machinery has been built to do this drudgery for them, thus allowing them more time and energy for the more important work.

ON THE FARM

Your stock will keep in a much healthier condition through having plenty of fresh running water to drink. You will get better work from your horses, more and richer milk from your cows, more weight on your hogs, and more eggs from your chickens.

Besides running water, there is the more convenient and thorough way of cleaning the buildings, washing your car and doing away with "the bucket brigade" in case of fire.

We have made a close study of the general conditions that confront the average farmer regarding his water supply, and are now able to install an equipment for pumping that has been made to give very satisfactory service, whether the source of water supply be from well, spring, lake or river, close at hand or at a distance.

Running water is not a luxury but a necessity, and if you will drop us a line we shall be pleased to deal with your needs as cheerfully as though they were our own.

DAVIS & BOUBLITZ

call, but frequently one call will interest a prospect sufficiently to bring the farmer, his wife, or both, down to our showroom, where a sale is consummated. The sanitation appeal is also a big sales-producer, and often a salesman will close with a prospect after talking about the dangers lurking in open-top wells.

"Every prospect located by an outside salesman is put on a mailing list and regularly followed up with manufacturers' literature, which we find to be an excellent sales-producer, not only for water systems, but for every line we handle. The journeyman is also a fertile source for live leads and the master plumber should train his men to keep their eyes open for plumbing and heating goods sales, when they are out on repair jobs and making installations in the country districts, and in the city too, for that matter."

Comparative Window Displays

Periodically this firm window displays water systems. Here is an example of one of these trims and it sold four outfits, which shows that this line is a profit-puller even from the standpoint of window-showmanship. Mr. Hawvermale, by the way, is strong for comparison window displays. In other words, he shows old-fashioned equipment in a window compared with modern merchandise. Recently, he tore out a water system that was more than twenty-five years old and put it in this window next to an up-to-date unit, using lettered placards to put over his sales story.

Reputation Helps Farm Sales

Worthington, Minn., like most towns of its size, depends upon cisterns for its soft water. The pumps, many of which have been in use for years, which furnish that soft water in the houses, are driven by pressure from the town's water supply system. This water is hard, and one of the best of the arguments used by Fauskee and See of that little city in selling electrical pumping equipment to these homes is the fact that the local water "limes up" the old style of pump and ultimately stops it.

That makes, of course, for service calls on the old pump. When a customer asks what it will cost to repair the old pump, the price is given him, while admitting that the repairs will probably keep the pump in working order for another year, the opportunity is made use of to push the idea of the electrically operated pump.

Following this, Mr. See makes it a practice to write such prospects personal letters. Each letter has in view the special needs of the customer or prospect to whom it is addressed. Thus, over a period of time, with no great sales pressure on the part of the firm, the logic of the situation leads to the sale of a pump.

Through the journeyman many of the prospects are secured. He does what he can to start the sale and a member of the firm closes it. As Mr. See said, the time to sell the pump is when the old one needs repairs.

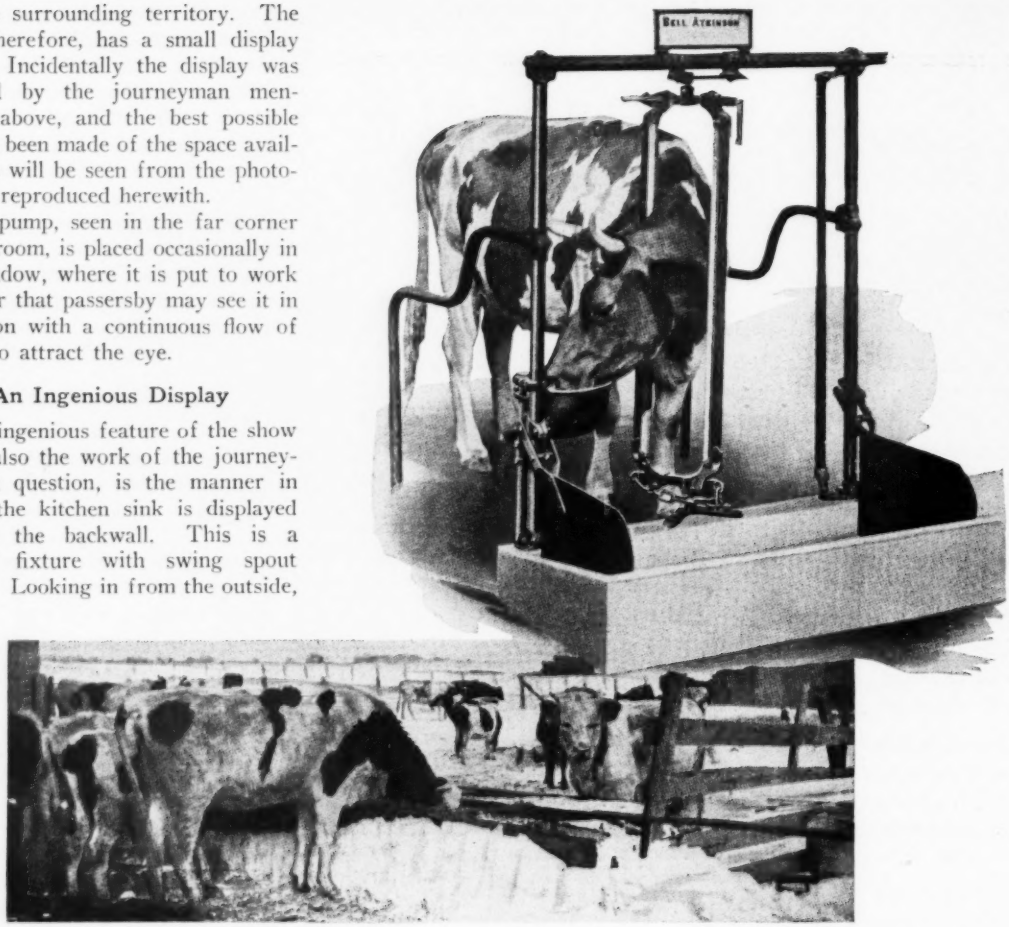
Worthington is a shopping center

for the surrounding territory. The firm, therefore, has a small display room. Incidentally the display was planned by the journeyman mentioned above, and the best possible use has been made of the space available, as will be seen from the photographs reproduced herewith.

The pump, seen in the far corner of the room, is placed occasionally in the window, where it is put to work in order that passersby may see it in operation with a continuous flow of water to attract the eye.

An Ingenious Display

One ingenious feature of the show room, also the work of the journeyman in question, is the manner in which the kitchen sink is displayed against the backwall. This is a colored fixture with swing spout faucet. Looking in from the outside, it appears as if installed under a window. What is back of it, in fact, is a solid wall, but the appearance of the window was secured by tacking up a large piece of heavy white paper, and running small varnished sticks across it. Neat curtains were then hung to complete the illusion.



Above—A prize winner and her individual drinking cup, contrasted with a winter watering scene, in old-fashioned style

An Increase of Thirty Per Cent

Since this feature section was prepared for publication, we have had a later statement from C. W. Hadan, mentioned earlier in this study of farm merchandising. We felt that what Mr. Hadan has to say is of sufficient importance to make the changes necessary in these pages to fit his letter in. Here is what he has to say in answer to an inquiry from DOMESTIC ENGINEERING:

"In regard to your letter of April 6th, will say that I will be glad to give you description of our efforts since the last story. We are following along the same line, namely, no competitive materials or methods used. We openly state and advertise that we won't bid on a competitive basis if price is the only consideration. Most everyone knows that they can't buy cheaply here but most of them also know that they get a good job and get the kind of service that makes them a booster.

"Our customers many times are more interested in our selling their neighbor or acquaintance than perhaps we are ourselves. We haven't ever given them anything for it either; while we have felt many times that they should have been compensated, yet I believe that that is not the right thing to do, as it may end up bad over a period of years.

"During the past year, our business increased thirty per cent, which I believe is due to lack of effort on the part of the automobile men, or that a lot of people figured the depreciation,

◆

FAUSKEE & SEE
PLUMBING AND HEATING
WORTHINGTON, MINNESOTA

Dear Mr. Johnson:

From checking over your account on your old water lift we find that you have spent a nice little sum on that old lift this year. After all the money you have spent you still do not have the convenience that you would have if you had an Electric Lift in your home.

Your old water lift costs you about six dollars a year and if you were to install a new electric lift your expense would not be over seventy-five cents to one dollar per year.

We would be very glad to have you come into our show room some day when you are up town and let us explain our pump to you and show you where you can buy this pump and really pay for it out of the saving that you would make over repairs and expense on your old lift.

Yours truly,

Fauskee & See.

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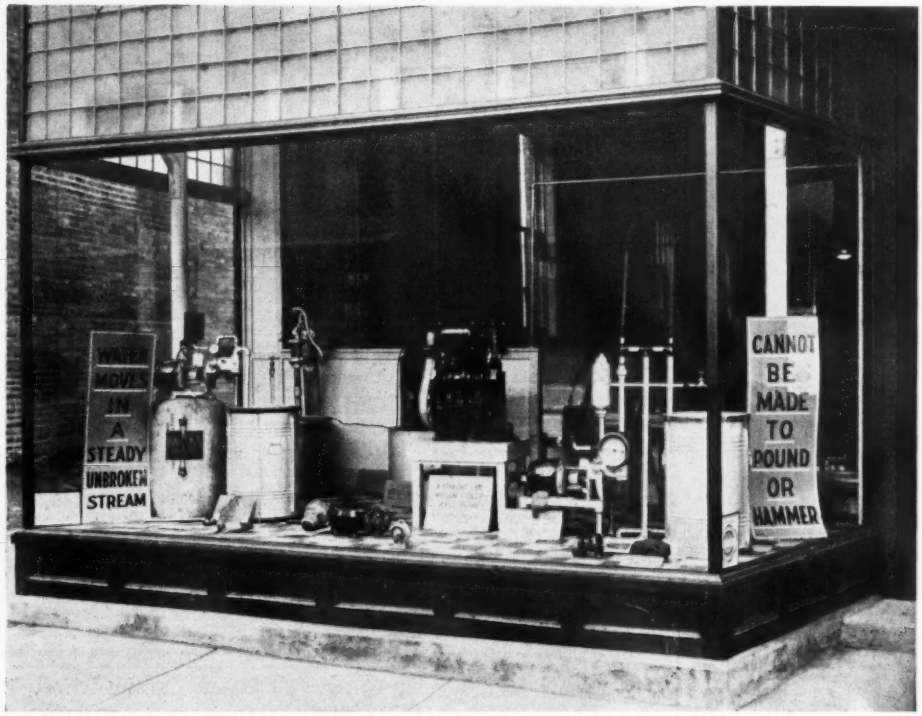


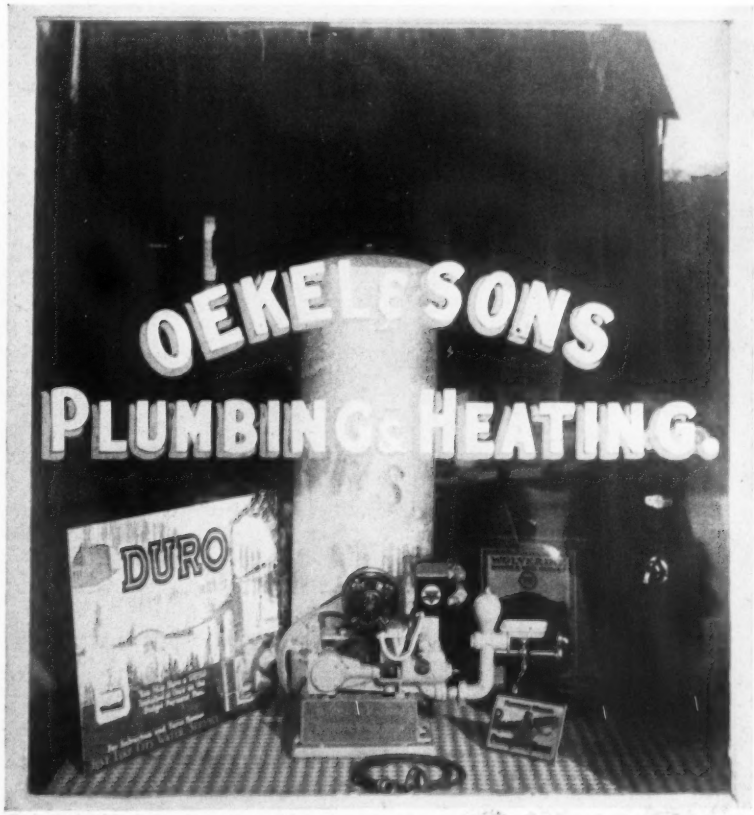
upkeep and operating cost of a car or tractor cost a lot of money, since most everyone has some money to spend in the course of a year, they are more easily sold modern equipment, as the benefits are the same, or even greater, and they aren't digging down into their 'jeans' for the money almost every day to keep it running.

"Our sales arguments are along the lines that people are not spending money on things that benefit them only a little, and that have a high operating cost, but are buying plumbing and heating now as prices are lower than for many years. We also use the argument, Why not spend your money on your own improvement instead of in banks and stocks where many have lost it entirely? The banker doesn't want their money, as my information from several bankers is that there is more money in their banks than they can satisfactorily lend; therefore, the cut in interest on time deposits.

A Bonus Plan

"In the last two years, we have put into effect a bonus plan for our employes which works out very well. The same really amounts to taking 5c an hour off their pay, which amounts to $3.00 per week. They get it at the end of every six months, providing everything has gone all right. If, for instance, a man leaves material on the job and it comes to my attention, he loses a week's bonus. Other items under that heading are, things "balled" up, customers' complaints,

Here are two window displays of the type that sell modern water systems to progressive farm owners



carelessness, forgotten charges (if only for a dime)—anything that an employe is responsible for. Whoever has lost the least bonus amounts every six months gets $10. We also give 5% on all sales by the employes if made by them while on my time or their own. If they use their own cars, they get 5c per mile for mileage. Also, they get a bonus for most sales that they have made at the end of every six months.

"I hire four men during the entire year and more when needed during the summer and fall. One man has been here ten years and another four years and neither has lost a day on account of no work.

"We have had all the work that we could handle and none of it was obtained at a price. I don't believe that we have ever gotten a job below someone else. We do lose a few jobs but I don't think it is more than one out of ten because we have found that but few want cheap jobs. If you want to sell at a price, you must have the price and that means that you must gather together cheap merchandise and cut corners, and there is no question about that because no one can do the impossible on that small margin of actual profit.

Taking gas to the dweller beyond the city mains. J. R. Storms of Pompton Lakes, N. J., does it, to his profit

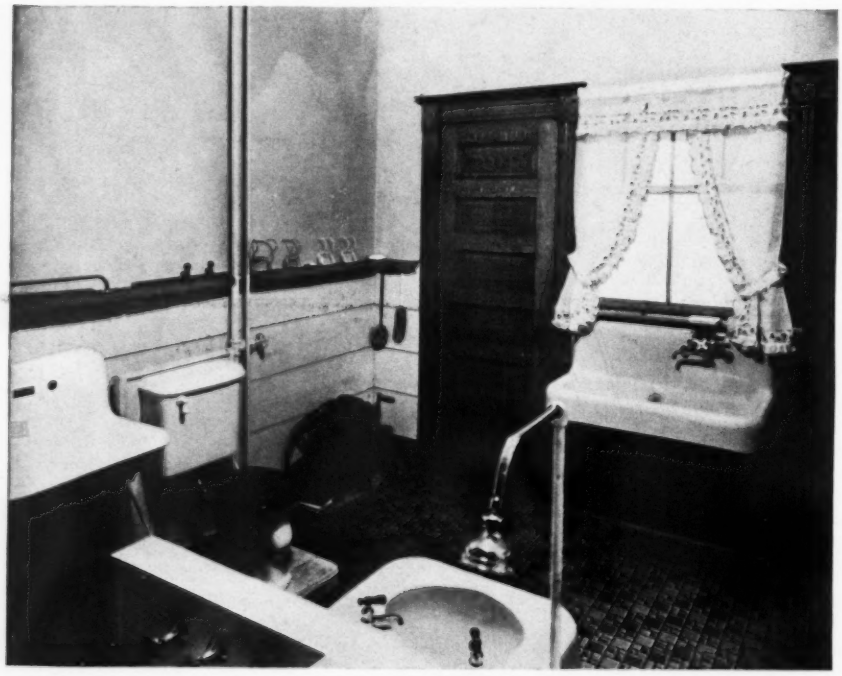
"As to advertising, we run ads in the county paper that take care of the small towns around here. Have about fifteen road signs, two feet by four, on main roads. I advertise in the County Fair book and the telephone book. I also display at the fair."

It is a pleasure to present this further statement from Mr. Hadan, as showing that, to the contractor whose selling is as alert as his, even conditions such as existed during 1930 need not keep him from pushing forward. We think that Mr. Hadan's record of a 30% increase during last year is something in which he may take a sound pride.

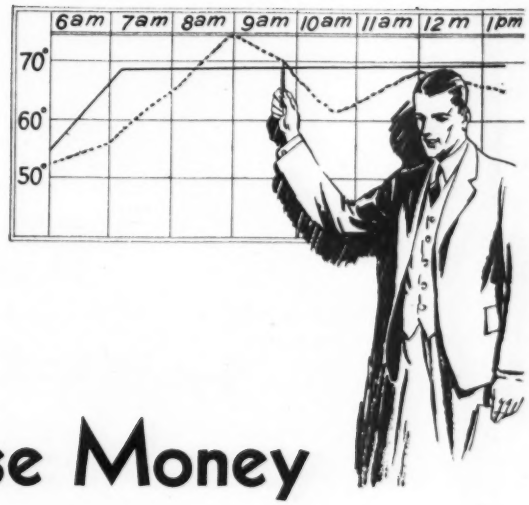
Selling Means Careful Effort

C. V. Swann, of Swann Bros., Huntington, W. Va., has this to say:

"It requires an honest, clean cut gentleman to get the farmer's business, as in nearly every case he must have evidence that he is dealing with a man who will make good every statement. Above everything else care must be taken that one tells him the absolute truth and meets every appointment punctually."



A display in a farm shopping center. The kitchen "window" is made of cardboard and narrow strips of wood



Knowledge of the heating load required is necessary in making your estimates accurately

Guess— and You Lose Money in Estimating

Whether a plumbing and heating contractor makes a profit or loses money on a job is dependent largely on the accuracy of his figuring when estimating the cost of the project. The importance of this phase of the contracting business can not be too strongly emphasized.

THE heating estimate, except for larger installations, is not as complex as the plumbing estimate, and one or two sheets in the Estimator's Binder will be sufficient.

Of course, there will be many cases where the estimator will have to prepare an estimate of the amount of radiation required for the building, and with this in mind the estimator should build up a binder containing certain engineering data so that they will be at his finger tips when needed.

In addition to various and sundry catalogs, the estimator should have a most complete library of the latest books on plumbing and heating supplemented by a study of the current trade magazines from which clippings can be taken and pasted in a scrap book for future reference.

There are a number of methods for estimating radiation, some simple and some very complex, but with average construction and in buildings of usual design, the simple rule can usually be relied on.

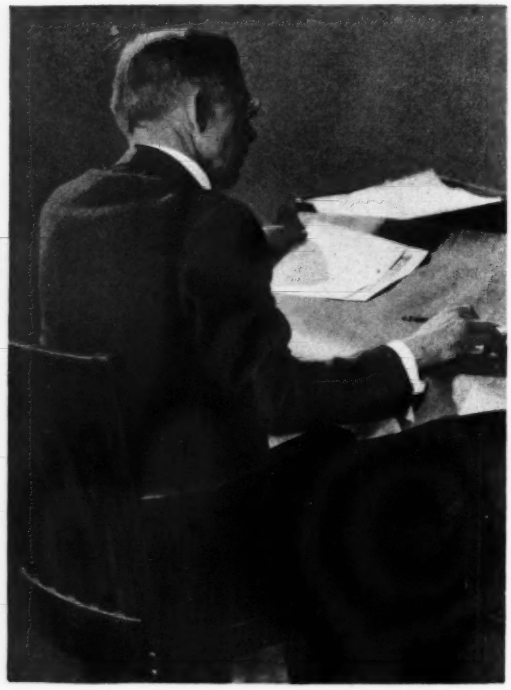
However, garages, warehouses, factories, etc., present different heating problems from those of homes, and the estimator should know the B.t.u. method of estimating radiation so that he can arrive at the required quantities in a correct and scientific manner.

All rules are adoptions of the B.t.u. rule; but it is only the B.t.u. rule which takes into proper consideration the materials of construction and the temperatures (other than the standard 70 degrees) required in the various rooms.

The heating section of the estimator's binder should contain the various price sheets issued by the boiler and radiator companies, and net prices on radiator valves, union ells, air valves, covering, etc.

Every heating estimate should be made on a printed

In this article, W. W. Hughes tells about all the engineering data which an estimator must have at his finger tips if he is to make estimates on heating installations that will prove correct and reliable in every detail. The information he gives about figuring labor on heating work is exceptionally valuable and should be studied and used by all heating contractors to assure a profit.



Every estimate should be made on a printed form prepared for that purpose, with all of the major and many of the minor items of cost listed thereon

form prepared for that purpose, with all of the major and many of the minor items of cost listed thereon. A printed estimate form is a guide whose true value cannot be estimated and is only appreciated after an estimate has been made without a form and something has been omitted which has resulted in getting a job at a price which did not show a profit.

Estimating procedure for heating is very similar to that employed in figuring plumbing. Assuming that the boiler has been selected and its location in the basement known and that the amount of radiation has been apportioned to each room and each radiator located in its proper place, the next step is to prepare a piping plan.

Many estimators follow this plan: The basement plan is spread on the desk and under it a large sheet of carbon paper and below the carbon paper a sheet of ordinary paper (wrapping paper is good enough for the purpose).

Then with an orangewood stick the walls of the building and the partitions are traced, the boiler and the radiators that are to be installed in the basement are also traced; the first floor plan is then substituted for the basement plan and the first floor radiators are traced, after which the second and higher floors take the same course.

When completed, the estimator has before him a rather crude plan of the whole installation, with all of the radiators in place. Then he can trace the various feed and return mains, branches and risers, can indicate the valve and pipe sizes, and take off the quantities of the various materials required for the job.

First consideration is the boiler. In addition to the net price as quoted or listed, it will be necessary in the majority of cases to add freight and cartage, and with the boiler on the job there will be an item of expense in lowering the boiler into the basement or boiler room, particularly if the boiler is made of steel.

Cast iron boilers come in sections and the placing in the basement is usually handled by the fitter and his helper, plus additional laborers for the larger sizes, but steel boilers can generally be lowered into place by men specializing in the handling of heavy equipment for less money than where the work is done by fitters.

In some cases the fitter will be called upon to provide a base for the boiler. This base may be of brick or concrete, it may be level with the floor or the specifications may call for a pit. In either case the estimator must know the cost of such foundations or secure the information from someone who does.

Some steel boilers require brick settings, and unless the contractor is doing a great deal of work in this line he will find it advisable to secure quotations on this part of the work from contractors doing brick work.

Smoke pipes for the smaller types of boilers can be estimated by considering the diameter of the pipe, as indicated by the boiler maker's catalog, and the length from the boiler to the chimney, also noting the number of elbows required.

Most of the smaller installations are made with galvanized iron smoke pipes in the 24 gauge weight iron, but in some cases heavier pipe, copper or cast iron smoke pipe, is specified, in which case the estimator must figure accordingly.

In the larger installations, where breechings are made of No. 12 or No. 14 black iron, the best plan is to get a price from some sheet metal concern having the facilities to turn out breechings of that weight. It should also be noted whether or not the smoke pipe is to be covered or painted, and whether special dampers of any sort have been specified.

The pipes, fittings, valves and trimmings used at the boiler should be listed with care. Some installations call for valves on the feed and return mains at the boiler, and in some cases welded headers will be found

The correctly heated home will be warm early Christmas morning when the kiddies rush to get their gifts

to be more economical to install than headers made up with screwed pipes and fittings.

Now that the fitters are taking up welding, it is probable that welded headers will become standardized equipment in most installations.

On steam installations, the returns may be fitted with check valves or the checkless return may be installed.

It is advisable to list all fittings and hangers, although experience shows that the fittings and hangers used on the average installation will cost about 50 per cent of the cost of the pipe.

Owing to the fact that specifications often call for steam return lines of wrought iron pipe, the added cost of this material over merchant pipe must be considered.

Many engineers also specify extra heavy close nipples and will not permit the installation of ordinary close nipples.

For the smaller installations, a compression stop cock is sufficient for the supply line to the system, but larger installations may require special control valves.

The heating estimate on this home was accurate from a mechanical and cost standpoint, and resulted in a satisfied customer

Likewise the smaller installations can be fitted with hose-end compression pattern drain valves (preferably without handles so that valve must be operated by a wrench), while the larger installations may require special drain valves or blow off valves, in some cases asbestos packed valves and in others a combination consisting of a gate valve and a hose-end boiler drain valve.

Most of the smaller installations, particularly of hot water heating systems, require the installation of a coil for the heating of water in the hot water storage tank. These are made in various shapes and of pipe and fittings, bent pipe or cast iron. The estimator's binder should contain a list of the various coils with net prices.

In steam and vapor installations, the best plan is to install some pattern of indirect heater for the heating of the water in the hot water storage tank. These may be installed either with or without valves and the estimator should plan accordingly.

It is a comparatively simple matter to list the various radiators specified for any particular installation by height and width and then price them accordingly, bearing in mind that a special discount applies when purchased in car lots and also adding such amount as may be necessary to cover the cartage from the warehouse or depot to the place of installation.

With the advent of the newer heating units, certain complications make it necessary that special attention be centered on this type of equipment, for example, the recess, the lining of the recess and the grill, and in those installations, where fans are used to direct the heat currents, there are electrical connections, special hangers, etc.

In many installations the radiators will be wall-hung, and this makes it necessary for the estimator to include the cost of the hangers, the necessary lag bolts and the labor of installation.

Likewise, for ceiling radiators, cradles, lag bolts and labor add to the cost of this type of installation over radiators set on the floor.

Sleeves and inserts should also be listed and priced separately, adding labor for installation.

Floor and ceiling plates should be listed and priced.

In a great many installations, return lines are run under basement floors or between buildings, in which case the estimator must provide for the labor necessary to make the excavation, together with the split tile pipe or conduit required, also rollers, cement and covering.

One page of the estimator's binder should be devoted to radiator valves, air valves, return ells and return traps, showing list prices, discounts and net prices.

Float vent valves and quick vent valves are essential parts of steam and vapor installations, and net costs of the types used should be a matter of record in the binder.

The expansion tank as used in the old-time, open tank system of hot water heating is just about a thing of the past and sales and installations are made so seldom that there is little need of listing them in the binder.

But the passing of the open tank has created a market for the various types of "pressure hot water heating systems," and costs of these various systems should be listed in the binder.

Thermostats or heat regulators are often sold and installed by men specializing in that work, but if this condition does not prevail, then the cost prices of the various regulators should be listed together with the cost of the labor necessary to make the complete installation.

Radiator valves with thermostatic control are also be-

ing used in a great many cases, and cost prices should be available.

Every installation requires a certain amount of cutting oil, waste, candles, pipe joint cement, screws, nails, bolts and sundries, and an amount equal to at least 1 per cent of the cost of the material and labor for the job should be added to cover these items.

Cartage or hauling of materials and tools depends upon distance from the shop or depot and the ability of the fitter on the job. The greater the distance, the greater the cost, likewise one fitter will list everything that he needs and order accordingly, while another one will have to have deliveries every day and sometimes oftener. Therefore, all factors must be well considered when estimating this item.

Heating boilers should be covered with a thick layer of insulation and all fitter's handbooks show the amount of surface to be covered as well as the amount of space that certain quantities of asbestos will cover, so it is merely a matter of arithmetic to ascertain the number of pounds of cement required, to which must be added the chicken wire, paste and canvas.

The same materials will be used on the fittings, with the exception of the wire.

Many of the newer boilers are equipped with insulated jackets which make it unnecessary to add anything for their covering or installation.

The pipes in the basement are usually covered with air cell, wool felt or magnesia pipe covering, the correct amounts of which can be obtained by scaling the plans after the mains have been marked thereon.

The specifications may also require a certain amount of painting, the radiators, the exposed piping, the boiler front, the iron work in the boiler room, the pipes before they are covered, and the pipe covering after it has been applied.

As a rule, this painting can be done cheaper and better by a painter than by a fitter, unless the contractor is doing enough work to justify the employment of one or more men who specialize in this work, or, as is sometimes the case, there are men who do both painting and covering, and there are also concerns who contract to install the covering and do the painting.

It is just another case of basing estimates on previous performances and estimating accordingly, local conditions and shop conditions both being taken into consideration.

Transportation, board, room, freight and drayage are items peculiar to each installation and must be figured accordingly.

If a bond is required, the proper allowance must be included for this item.

Labor costs present a problem which cannot be solved by any rule of thumb. Some estimators figure that a fitter and helper can install one radiator per day and this may be a fair average, but there are numerous cases where a fitter and helper can install several radiators per day and there are jobs where it requires several days for each radiator, therefore the only safe method is to know your stuff and base your estimates on past performances, keeping your records right up to the minute at all times.

It goes without saying that tools and equipment play an important part in reducing labor costs on any installation, and it behooves the contractor to supply his mechanics with first class tools and to maintain these tools in first class condition.

It is also a self-evident fact that no time should be lost because of non-delivery of materials, and the contractor should anticipate the requirements of the job and make certain that an ample supply of materials is always available.

And it is equally important that good materials can be installed quicker and better and with fewer non-paying comebacks than can cheaper and inferior materials, therefore quality should be considered when making purchases instead of relying upon price alone.

Estimating Labor on Plumbing Work

As a concrete suggestion towards the building up of an estimating system, we suggest that estimators make use of the following data as a basis upon which to build their own tables, using their own costs for the purpose.

To estimate the amount of labor required for the installation of plumbing in various types of buildings, proceed as follows:

Build up the estimate sheet so that all of the roughing-in material is one group; in the second group place the fixtures; and in the third group the mechanical equipment, such as fire hose and reels, towel and paper cabinets, towel bars, etc. And in a fourth group might be placed such items as might well be called "specials," as for example an extra large automatic gas water heater.

With the four divisions made as above outlined, use factors for the type of building which experience has shown apply directly to that particular type of building.

Thus 65 per cent of the cost of the roughing-in material, plus 30 per cent of the cost of the fixtures, plus 18 per cent of the cost of the mechanical equipment, and plus an estimated allowance for the articles in group four, should be a safe amount to estimate for the labor required in the installation of the plumbing equipment in the average small dwelling, two family, three family or four family building of frame construction where the rate of pay for plumbers is $12.00 per day of 8 hours.

If the rate of pay differs from this factor, take the sum total, for example $120.00, and divide by 12, which will then give the number of days (10), and multiply by the rate of pay. If $10.00 per day, the cost will be $100.00; if $11.00 per day, the cost will be $110.00.

In like manner, we would use the following schedule for buildings of various type and construction:

	Per Cent
One, two, three and four-family buildings of frame construction	65
One-story store buildings, either frame or brick construction	80
Better class of dwellings containing more than one bath room	80
Five-family apartments and larger of frame or brick	90
Five-family apartments and larger of concrete construction	115
Store buildings with apartments and offices above; (frame)	100
Store buildings with apartments and offices above; (concrete)	115
Hotels, factories, garages, office buildings; schools, etc.	100
Theaters, clubs, churches, hospitals, clinics, etc.	125

The above percentages apply to the roughing-in mate-

(Continued on Page 146)

A Proposed New System for Heat Calculations

Harold L. Alt describes in this article the advantages of using a unit of 1000 B.t.u. heat emission in place of the present arbitrary figure of 240

IN THE magnificent advance which has been made in the heating industry during recent years it is more or less astonishing that no effort has been made to simplify heat calculations and the sizing of radiators and boilers. A good many years ago 250 B.t.u. was considered as the equivalent heat emission of 1 sq. ft. of steam radiation, but accurate tests of the old cast iron radiator showed that 240 B.t.u. was a closer average figure and for that reason the figure was gradually changed to 240 throughout the country.

With the advent of tubular radiation the question arose as to how to rate the (then) new type of heating surface and most manufacturers finally came around to the idea of the equivalent square foot of heating surface (Equivalent Direct Radiation) and established radiator ratings based on dividing the actual heat emission from a radiator by the figure of 240 which resulted in giving the E.D.R. for the radiator.

The advantages of this were two-fold; in the first place all heat calculations would be divided by a common figure of 240 and the resultant amount would be the square feet of column radiation required; in the second place the same square feet could be used for tubular radiation since the tubular radiation was rated on the E.D.R. basis. This brought about a condition where the column radiation surface was more or less an actual surface while the tubular surface was simply equivalent heat emitting surface and not actual surface at all.

When copper and brass radiators began to be placed on the market the makers naturally followed existing practice as far as possible and also rated their product on the E.D.R. basis though in some cases only 40% of the weight and space of the cast iron type of radiation was required.

Boiler manufacturers in order to make their boiler ratings comparable with the radiation load divided their boiler delivery in B.t.u. by 240 and produced boiler ratings in E.D.R. so that gradually all heat calculations developed from actual square feet of radiator surface to equivalent square feet of radiator surface. But equivalent to what? Why the old average heat emission from a cast iron column radiator!

Now what magic exists in retaining the old figure of 240 B.t.u. today? It no longer represents anything but a common and arbitrary standard of comparison between heating surfaces of various kinds and boiler ratings. If this is admitted, then why not adopt a new standard of comparison which would simplify and render heat calculations more easily handled?

As a suggestion along this line and to avoid dislocating existing practice to the greatest possible degree, the unit of a thousand B.t.u. is suggested. This unit (Metric Unit) has many desirable features which the 240 unit fails to possess. In the first place, after the heat calculations for a room are completed, the only thing necessary to do in order to find the M.U. required for the radiator would be to point off three places.

How It Would Work

Thus, if a room figures 4580 B.t.u. it is apparent at a glance that this is 4.58 M.U. and, if after adding up all the M.U. for the different rooms in a building the total is found to be 18,649 M.U., then the boiler must have a capacity of the following:

Radiation in Building	18,649 M.U.
Piping 25%	4,662 M.U.
Heating up Overload 25%	4,662 M.U.
Total Boiler Capacity under maximum load	27,973 M.U.

Now, if the boilers are rated in M.U. it is only necessary to find a boiler whose rating slightly exceeds 27,973 M.U. If the boiler is rated in B.t.u. then the M.U. is obtained by simply pointing off three places. Thus, suppose the boiler rating is 30,000,000 B.t.u. per hour; then the M.U. may be seen (by simply looking at the B.t.u. rating) to be 30,000 M.U., which is sufficient for the requirement calculated.

A boiler horsepower is generally taken as 33,340 B.t.u. per hour; simply by inspection this will be seen to be 33.34 M.U. and one sq. ft. of E.D.R. (at 240 B.t.u.) is just as easily transposed to 0.24 M.U. Or a ton of refrigeration which is usually taken as 12,000 B.t.u. per hour may be as readily changed to 12 M.U. with a corresponding reduction in the number of figures used in calculating.

It is well known that one of the chief objections to calculations in B.t.u. is the large amounts arrived at in many cases, these reaching well over the million mark for a modern building. When using the M.U. the same calculations would only run a little over 1,000 M.U., which seems a much less cumbersome figure to handle. Of course the reduction in figures carries all the way down the line, three places being omitted in nearly every case so that merely the manual labor of calculation should be cut in half when this scheme is used.

Legal Questionnaire

Answered by "The Judge"*

How Long Should a Master Plumber in New York Keep Receipted Bills, Cancelled Checks, etc., for Use As Proof of Payment?

Editor, DOMESTIC ENGINEERING:—Will you kindly let me know the law, as to the length of time one should keep his paid bills, also cancelled checks, as proof of payment for merchandise, etc. Also any receipts for cash payments, such as extras, rent, etc.

New York. M. A. F.

Answer:—Generally speaking, a debt or account is outlawed at the end of six years. That means that although the debt is still a debt, the courts will refuse to entertain your remedy, in the shape of court action, to collect it. In other words, it becomes valueless at the end of six years in most cases.

Your statutes provide that actions on contract obligations, or liabilities, express or implied, except a judgment or a sealed instrument, must be sued upon within six years from the date of the last item of the account, or the last act of either party in the performance of a contract. Sealed instruments and judgments are not outlawed for twenty years.

The exceptions to the general rule as to ordinary contract obligations are the hardest to define definitely, particularly with respect to what are called "open accounts." An "open account" is one which consists of a series of transactions and is continuous or current and not closed or stated. Generally speaking if some term of a contract arising from a commercial transaction is left open and undetermined by the parties, the account is regarded as "open." The most common species of such an account is where there are running or concurrent dealings between the parties which are kept unclosed with the expectation of further transactions. An "open account" usually has a balance due from the debtor as long as it is an "open account." You can see that if at any time a debtor is square with you on your books, the matter of time is unimportant as to items which he has paid for, and it is only when he orders new items that the account may become an "open account" again.

It is sometimes true, also, that an account may be considered as being an "open account" although in fact it consisted of but a single item or although a long interval may intervene between the items. But such "open accounts" are not frequent and must be attended by special circumstances to make them "open accounts."

Checks are governed by the same rule, with a limit of six years, as far as suit on any particular check is concerned. If a check is to be used as evidence of payment of a bill, it may be a part of a long "open account" and therefore may have to be kept more than six years as a safeguard. Under our modern system of banking, however, it would not be likely that you would find a need of a check, to keep your account at your bank correct, for any considerable part of the six years period.

There is another exception which sometimes is important, and that is in the case where a debtor removes from the state for a period of more than one year, or lives in the state under a false name. In such cases, the time that the debtor is out of the state or lives in the state under a false name, is not a part of the six years of limitation. In other words, in the two instances which I have just cited, the time for bringing suit may be extended beyond the six-year limit.

With these general rules in mind, the question whether you should keep certain records in your files becomes a practical matter. It is always possible that records might be of use after six years. You might square up with a customer or creditor and afterwards have further dealings with him. Then, when some of those further dealings fall into dispute, you might like to have some of the records of the dealings covering a period just prior to the date of a full settlement, to show just how certain payments were made and to what items they were credited.

You will see, therefore, that I can say only that generally records which go back of six years from the last item of a transaction need not be kept in your files.

There is another question of limitation of actions, having to do with trusts, with which you probably are not interested. Where a trustee does something which gives a beneficiary of the trust a right of action, the time within which action must be taken by the beneficiary does not begin to run until the beneficiary learns of the trustee's act of which he complains. Also, in such trust matters, a beneficiary, having learned of the trustee's fraud or other act, may be required to take action within a reasonable time.

*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

When you are called upon to defend a certain plumbing practice which your code says you must enforce what authority do you refer to? The majority rules. If you can say that ninety per cent of the cities and states in the country support the practice in question, you have given reason enough, which is convincing. Where else can you turn for this concise imformation, in tabular form so that you can find what you want at a glance?

Code Study Reveals Wide Difference In Venting Practices

By R. M. STARBUCK, JR.

This is the fifth article by Mr. Starbuck in which he makes a most thorough study of the venting practices in various cities

WE found several cities in New York alluding to shaft or loop vents. The term shaft vent is an uncommon one.

The Bayonne, N. J., code has a regulation which states that care must be taken to prevent waste splashing into the vent opening and causing stoppage. It doesn't seem to us that such an indefinite law as this gets anywhere, and yet there are many such indefinite regulations to be found in plumbing codes.

Madison, N. J., demands that all vent pipes must drip into the vertical vent line. Our understanding of this is that a horizontal branch vent would have to pitch down into the main vent stack, and this would be entirely against all principles governing venting. If it actually means that the vent should pitch upward toward the main vent, then it is correct, but poorly stated.

In the codes that we have studied, every possible practice concerning the use of materials is to be found, but as a general thing, we find that the use of lead, either for wastes or vents, is greatly curtailed.

The plumbing code of the city of Oakland, Calif., has this ordinance: "All soil or waste stacks in buildings ten or more stories in height shall be cross-connected between the soil or waste and vent pipe lines at each fifth floor, with a pipe the size of the vent pipe line at the point of connection, and at a point not lower than three feet six inches above the floor line."

This practice is shown in Fig. 6.

We invite discussion of all of the practices shown in the tabulations and in the illustrations.

New York City Code

Very often, indeed, request is made for the laws governing venting, as given in the plumbing code of the city of New York. Doubtless, the idea back of this desire to know the plumbing laws of the city of New York is that, because it is the largest city in the country and undertakes things on the largest scale, therefore, its plumbing laws must stand as an example to be followed. We have often found most excellent plumbing laws in force in small cities, and our own opinion is that in the medium-sized cities, will generally be found better

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	General Remarks
North Arlington	All traps to be vented		W. C.'s within 5 ft. of stack, require no vent. When over 10 ft. from soil line, soil branch must be 3 in. through roof			
North Bergen	All traps to be vented				Not allowed	Main vent must pass separately through roof when there are fixtures on more than four floors.
Ocean	Trap vents are prohibited					
Orange	Continuous vents required					
Passaic	Each trap shall be ventilated from the crown. Automatic vents may be used	On bath tubs using anti-siphon traps. On top fixture if within 5 ft. of stack	Vents may be omitted on siphon-jet water closets on old work		Not allowed	
Paterson	Continuous vents required. No trap over 5 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, pedestal urinals, slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Allowed under certain conditions	
Pequannock	Continuous vents required		W. C.'s require no vent if within 5 ft. of stack. Cellar W. C.'s to be vented			
Perth Amboy	All traps to be vented. No trap over 2 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, and must be 3 in.		
Plainfield	Continuous vents required. No trap over 5 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, pedestal urinals, slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Allowed under certain conditions	A vertical branch rising over 10 ft. or a lateral branch over 25 ft. long shall continue through roof, or return to main vent above all fixtures.
Pleasantville	All fixtures except W. C.'s to have anti-siphon traps		Only 1 W. C. allowed on a branch unless extended through roof or above highest fixture			Each branch 15 ft. or over must be vented by a line through roof or into stack above highest fixture.
Princeton	All fixtures except W. C.'s to have anti-siphon traps	Anti-siphon traps require no vents, unless over 6 ft. from stack				Every vertical vent pipe must be of C. I. or galv. W. I.
Prospect Park	All traps to be vented, either in usual manner or by an approved automatic vent	On top floor W. C.			Not allowed	Vent intersections must be over 6 in. above overflow line.
Rahway	Branch wastes shall have non-siphon traps	Non-siphon reaps require no vent				
Red Bank	All traps to be vented	When P traps are used within 3 ft. of stack	W. C.'s without vent from crown of bend not allowed over 3 ft. from stack			
Ridgewood	Continuous vents required. No trap over 5 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, pedestal urinals slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Allowed under certain conditions	
Roselle Park	All traps to be vented	On top floor W. C. less than 3 ft. from stack	Vent from W. C. over 10 ft. from stack shall be carried separately through roof			
Scotch Plains	All traps to be vented					
Springfield	All traps to be vented		When a W. C. is over 10 ft. from stack, the branch shall be carried through roof			When S traps are used they shall be vented from the crown.
Union	Continuous vents required. No trap over 3 ft. from vent			Allowed on batteries of 2 to 6 W. C.'s or other fixtures, and shall connect in front of last fixture. Relief vents required		1¼ in. vents not allowed.
Union City	All traps to be vented		W. C. vents must be made just below the trap	Allowed on batteries of W. C.'s and other fixtures when within 2 ft. of branch	Not allowed	Branch vents not to connect less than 6 in. nor more than 2 ft. from crown of trap or side of bend.
Weehawken	All traps to be vented			Allowed on batteries of W. C.'s and other fixtures when within 2 ft. of branch		When fixtures are on more than 6 floors, main vents must pass separately through roof.
West Orange	All traps to be vented	On siphon W. C.'s				No vent pipe shall be smaller than 1½ in.
New York						
Albany	Continuous vents required. No trap over 1 ft. from vent			Allowed on 4 to 8 W. C.'s, pedestal urinals, slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Not allowed	No horizontal vent pipe over 2 ft. long allowed below floor adjacent to trap, or 4 ft. above floor. All vents to be galvanized.
Amsterdam	All traps to be vented	On W. C.'s less than 6 ft. from stack			Not allowed	All fixtures must be vented in old houses.
Auburn	All traps to be vented	On top floor W. C.	W. C.'s must be separately vented			Main vent line for W. C.'s in building over 4 stories must be 4 in.
Buffalo	Continuous vents required	On top floor W. C.		Allowed for 3 or more W. C.'s.	Washout and siphon W. C.'s above cellar require no vent when vented by another fixture	Bow vents prohibited.
Dunkirk	All traps to be vented	Vents may be omitted by increasing size of stack. See text				1¼ in. vents used for all fixtures but W. C.'s 8 traps allowed when vented from crown.

plumbing regulations than in the largest cities. The New York City venting regulations follow:

"All traps, except approved anti-siphon traps connected to main waste or soil lines or to the house drain by branch piping not over 7 ft. in length, with a fall not exceeding 2 in. per foot, shall be protected from siphonage and back-pressure by special lines of vent pipes; provided, that where approved deep seal siphon-jet water closet or slop sink fixtures are installed with branch piping not over 5 ft. in length from fixture to main soil or waste line, the vent pipe may be omitted for such fixtures in buildings not over eight stories in height and where the main soil or waste line is made 1 in. larger in diameter than required by these rules, the vent pipe may also be omitted for such fixtures in buildings over eight stories in height.

"All vent pipe lines and main branches must be increased in diameter and extended above the roof as required for waste pipes. They may be connected with the adjoining soil or waste line well above the highest fixture, but this will not be permitted when there are fixtures on more than six floors.

"All offsets must be made at an angle of not less than forty-five degrees to the horizontal, and all lines must be connected at the bottom with a soil or waste pipe or the drain, in such a manner as to prevent the accumulation of rust scale.

"Branch vent pipes shall be kept above the top of all connecting fixtures, so as to prevent the use of vent pipes as soil pipes or waste pipes. Branch vent pipes should be connected not less than 6 in. nor more than 2 ft. from crown of trap or side of lead bend.

"Except where yoke type ventilation is installed, vent connection for water closets and slop sinks must be made from the branch soil or waste pipe just below the trap of the fixture, and the branch vent pipe must be so connected as to prevent obstruction, and no waste pipe connected between it and the fixture. Earthenware traps must have no vent horns.

"Yoke type ventilation shall be taken to mean a cross-connection, by means of a horizontal branch soil or waste pipe, between the main soil or waste line and the vent line, and in which the connection between the branch pipe and the vent line is made at least 6 in. above the line of fixtures discharging into such branch pipe.

"No sheet metal, brick or other flue shall be used as a vent pipe.

"The sizes of vent pipes throughout must not be less than the following:

"For main vents, 2 in. in diameter; for water closets on three or more floors, 3 in. in diameter; for other fixtures on less than seven floors, 2 in. in diameter; 3-in. vent pipe will be permitted for less than nine stories; for more than eight and less than sixteen stories, 4 in. in diameter; for more than fifteen and less than twenty-two stories, 5 in. in diameter; for more than twenty-

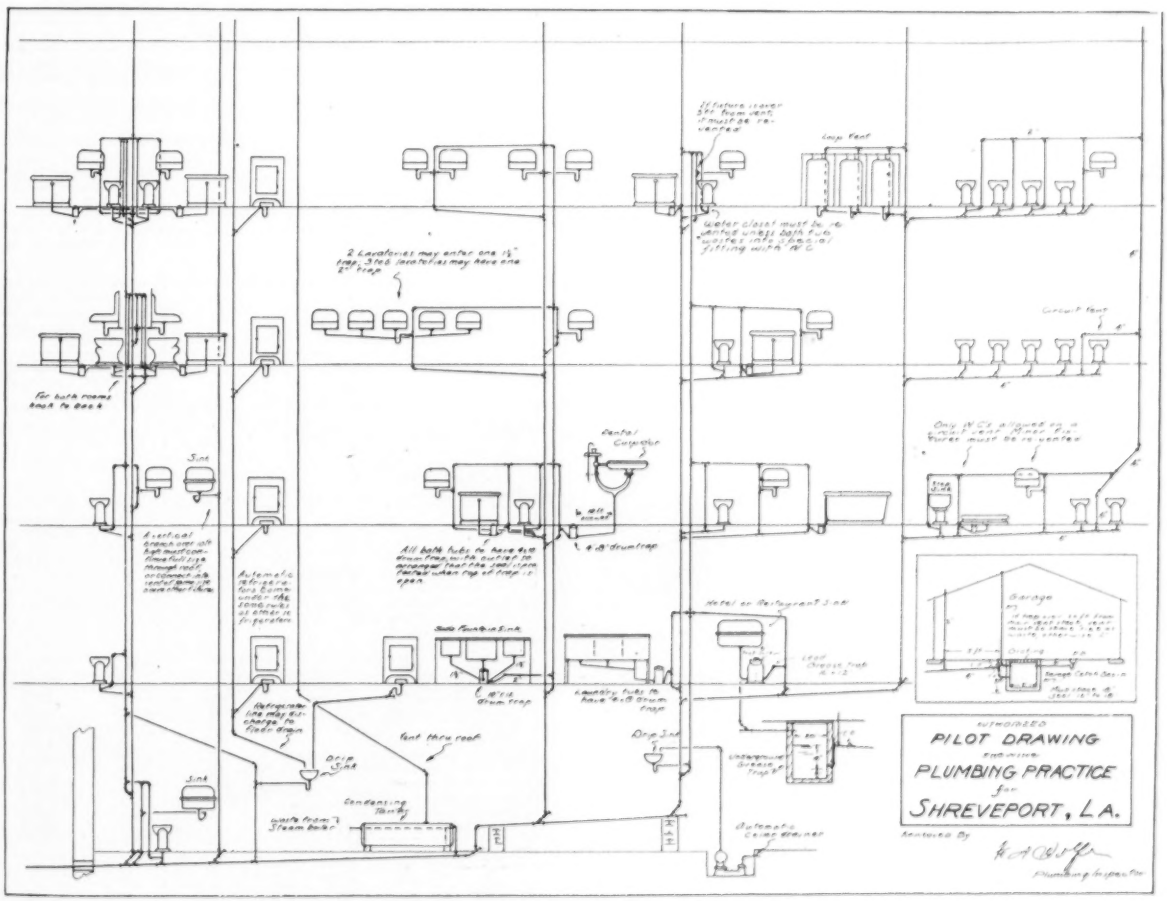


Fig. 7

stories, the size of the vent pipe shall be determined by the Superintendent of Buildings.

"For fixtures other than water closets and slop sinks and for more than eight stories, vent pipes may be 1 in. smaller in diameter than above stated.

"For long branch vent pipes over 10 ft. in length, but not exceeding 25 ft. 2 in. in diameter; when over 25 ft. in length, but not exceeding 50 ft. 3 in. in diameter. No branch vent pipe can exceed 50 ft. in length, nor can any main vent be of less diameter than the largest branch vent connecting to same.

"When the plumbing fixtures installed in any building are arranged in groups or batteries, yoke type ventilation may be installed, provided that for batteries of water closets each fixture shall be set not more than 2 ft. distant from the horizontal branch soil pipe into which it discharges, and for batteries of fixtures other than water closets, each fixture shall be so located that its trap will be not more than 2 ft. distant from the horizontal branch waste line, into which it discharges. When the ordinary type of venting is installed and the number of branch or back vents from the traps of fixtures connecting to any main branch vent exceeds the number and size given in the following table, a 3-in. main branch vent must be provided for the additional vent connections.

Under many plumbing codes, there are many venting exemptions. Rochester, N. Y., is a typical example. The

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	General Remarks
Elmira	Continuous vents required. Vent intersections not less than 30 in. above floor	When impracticable to vent, also on drinking fountains, cuspidors and bars				In all new or remodeled houses a vent must be extended into cellar for future use.
Floral Park	All traps except approved anti-siphon traps not over 7 ft. from stack or main drain, shall be vented	On siphon-jet W. C.'s not over 5 ft. from stack, in buildings not over 8 stories		Allowed for W. C.'s and slop sinks		Branch vents must connect not less than 6 in. or over 2 ft. from crown, or side of lead bend.
Geneva	Continuous vents required	On top floor fixture within 5 ft. of stack. On bath traps within 3 ft. of stack and within 18 in. of fixture. On traps whose center is not over 18 in. from stack	W. C.'s within 8 ft. of 4 in. stack, require no vent	Allowed for 3 or more W. C.'s	A 2 in. fixture waste, or 2 smaller wastes, entering a closet bend may serve as W. C. vent. When bath waste connects to lavatory waste, bath trap requires no vent if connection is within 3 ft. of trap	Not allowed
Glens Falls	All traps to be vented		All W. C. branches over 5 ft. long shall be vented. When 2 or more W. C.'s on line, all but top W. C. shall be vented			
Hornell	Crown venting allowed, but continuous venting preferred	On top floor W. C. within 5 ft. of stack	When 2 or more W. C.'s on line, all but top W. C. shall be vented			Small fixture may connect to lower end of main vent stack.
Hudson	All traps to be vented unless inspector determines there is no tendency to siphonage				Not allowed	
Jamestown	All traps to be vented. Vent pipes must extend 2 ft. above fixtures	On W. C.'s within 3 ft. of main stack				Main vent for buildings of more than 4 stories must be at least 3 in.
Johnstown	Traps other than approved anti-siphon traps must be vented		All W. C.'s must be vented if over 5 ft. from stack		Not allowed	Main vent for W. C.'s in buildings over 4 stories must be at least 4 in.
Lockport	All traps to be vented. Vent intersections 1 ft. above top of highest fixture					Main vent for W. C.'s in buildings over 4 stories must be at least 3 in. All vents must be of C. I. or W. I.
Mount Vernon	All traps to be vented					When a fixture is over 15 ft. from main vent, a separate line shall extend through roof.
Newburgh	Continuous vents required. No trap over 5 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, pedestal urinals, slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Allowed under certain conditions	
New York City	All traps to be vented, except approved anti-siphon traps on branches not over 7 ft. long	On approved deep-seal siphon-jet, W. C.'s or slop sinks not over 5 ft. from main line in buildings not over 8 stories high				All vents must be of iron, steel or brass. When fixtures on more than 6 floors, vent stack must extend separateoly through roof.
Niagara Falls	Continuous vents required	On top floor W. C. within 5 ft. of stack	Washout and siphon W. C. above cellar requires no vent when W. C. vanted by some other fixture	Allowed on batteries of W. C.'s and other fixtures when within 2 ft. of branch		Bow vents prohibited
Olean	Crown venting allowed, but continuous venting preferred		When 2 or more W. C.'s on line, all but top W. C. shall be vented	Allowed for 3 or more W. C.'s. When used for 3 W. C.'s, 4 in.; not over 8, 5 in.; not over 12, 6 in. run, with vent 4 in.	When lavatory waste enters bath waste at crown, not over 2 ft. from trap, same may be used as vent	Small fixture may connect to lower end of main vent stack.
Poughkeepsie	Continuous vents required. No trap over 5 ft. from vent			Allowed on batteries of 2 to 8 W. C.'s, pedestal urinals, slop sinks or showers, and shall connect in front of last fixture. Relief vents required	Not allowed	
Rochester	Continuous vents required. Vent intersections 6 in. above fixture	On anti-siphon traps within 8 ft. of stack. See text		Groups of 3 or more W. C.'s shall have yoke vent		
Rome	Continuous vents required					

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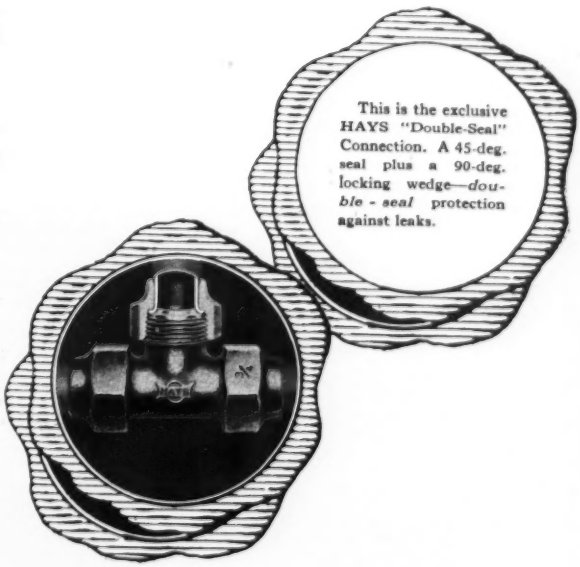

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HAYS
DOUBLE SEAL CONNECTIONS

318

venting exemptions allowed by Rochester are the following:

"All fixture traps, when not vented, shall be anti-siphon traps, as approved herein. . . . Anti-siphon traps, approved herein, may be used within 8 ft. from a continuous line, extending through the roof, except where fixtures are located on first floor. In buildings four stories or more, all water closets connected to a line of soil pipe, shall be revented, except top fixtures, and in all cases where openings are left for future water closets, provision must be made for back vents for all such openings. . . . Above the cellar or basement, 2 or 3-in. shower bath traps, not more than 5 ft. from a ventilated line, may be used without back vents. . . . In back-venting water closets, if same are not more than 8 ft. from stack, two water closets on the same floor and stack will be considered as one. If not more than 8 ft. from stack, one or two water closets will be allowed at top of same, without back vent. If not more than 8 ft. from stack, one or two water closets will be allowed without back vents on any two floors in buildings not over three stories high. . . . When located in cellar or basement, one or two water closets will be allowed without back vents. . . . Slop sinks having traps 2 in. or larger, shall be back-vented, except where there is but one slop sink within 5 ft. from a ventilated line. . . . Water closets and fixtures with traps larger than 2 in. shall not be back-vented when attached to the yoke vent system. All other fixtures so attached shall be properly trapped, and traps shall be back-vented, except when anti-siphon traps are used within the required distance. . . . A modified yoke vent may be used for sinks, basins and urinals, without back vents, if traps are not more than 2 ft. from the vent line."

In Figs. 7 and 8 we show two pilot drawings, which will serve to show not only the plumbing practice of the two cities, but various venting practices.

Fig. 7 illustrates the pilot drawing of Shreveport, La., and Fig. 8, that of Grand Rapids, Mich. The Shreveport pilot shows a full-vented installation, while the Grand Rapids pilot shows a considerable use of unvented, non-siphon traps.

◆

Under date of January 10, 1931, a recommended commercial standard for staple seats for water closet bowls was circulated for written acceptance. Since that time the Department of Commerce, Bureau of Standards at Washington has received signed acceptances from a number of manufacturers, distributors and users estimated to represent a satisfactory majority. Therefore, it has been announced that the commercial standard may be considered effective for new production and clearance of existing stocks as of October 1, 1931.

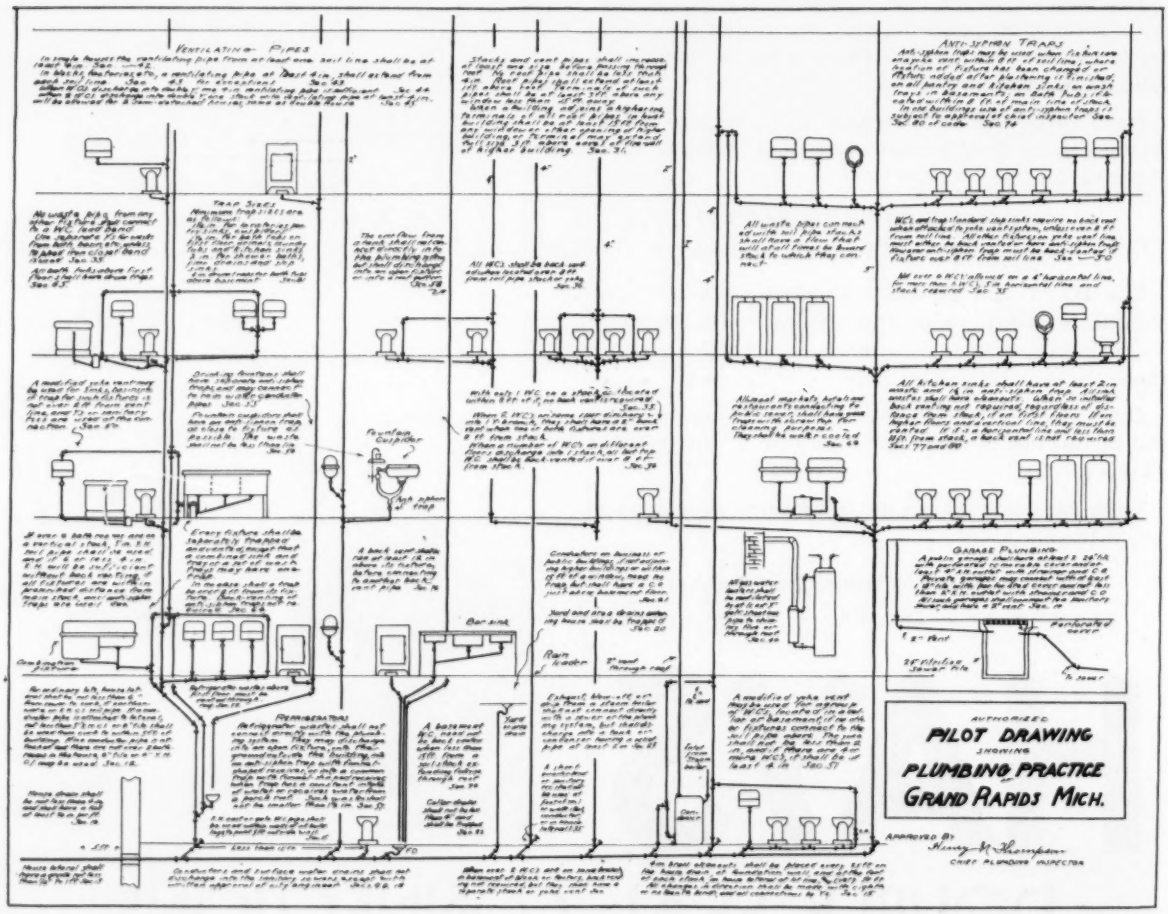
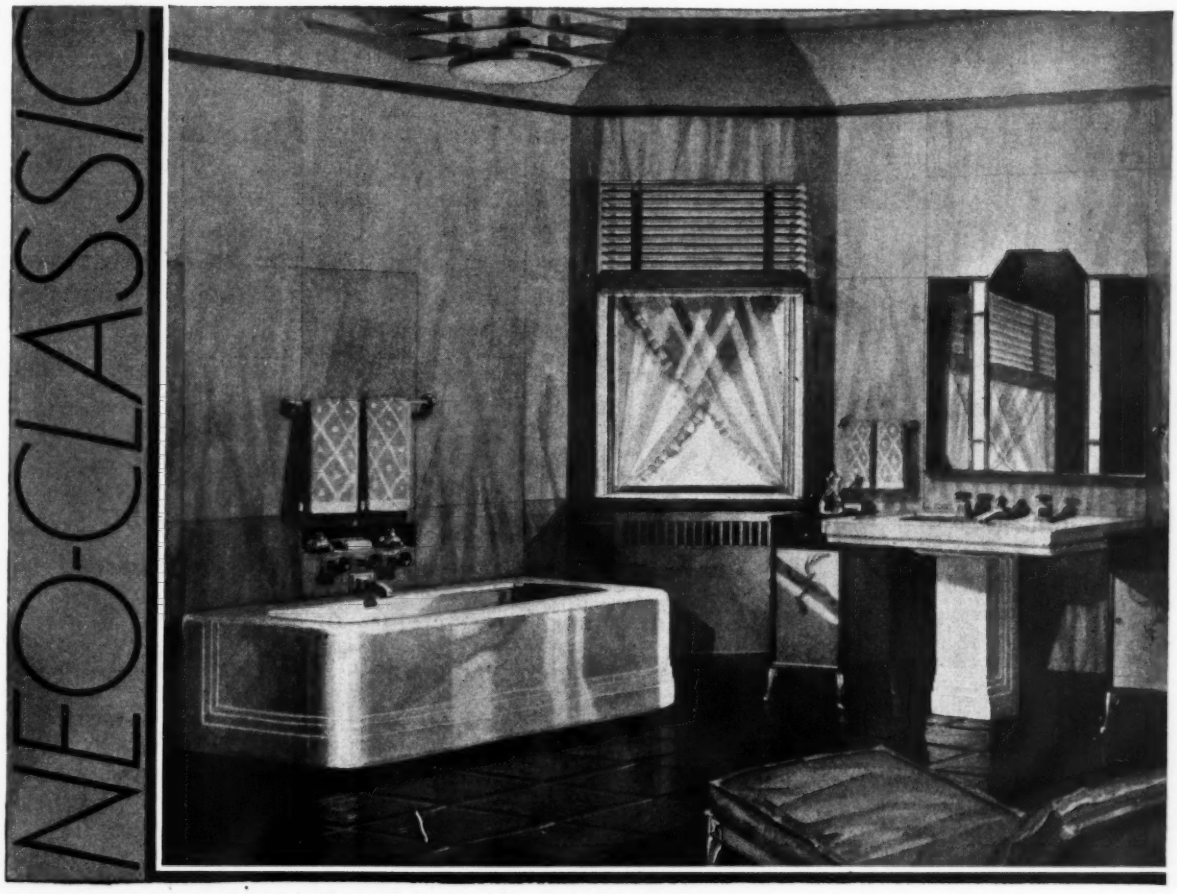


Fig. 8



Home builder, home modernizer, architect, interior decorator—all have welcomed the Neo-Classic form, newly created for "Standard" Plumbing Fixtures by a designer of pre-eminent authority.

Like all of this designer's work, the Neo-Classic form is characterized by that artistic restraint which ensures permanent worth. Its individuality is grounded in the tradition of simplicity, a simplicity which is at once classic and modern. Here is a new decorative note in plumbing fixtures, which, because it is not over-emphasized, is a true part of the functional form and contributes appreciably to its beauty.

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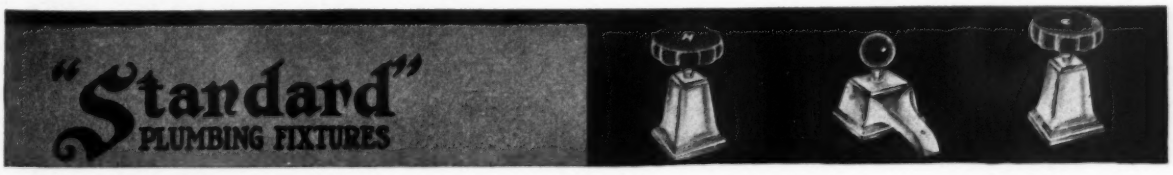


RETAIL ADVERTISING SERVICE

IT is evident that every branch of the industry is now alive to the value of and the need for sales in the remodeling field. Until new business picks up again, it is going to be necessary to create a volume of sales in existing homes. The advertising copy on these two pages is meant to help the plumbing and heating contractor who is going after this type of business.

New Plumbing—
It Costs Less

IN business, equipment is discarded when it is no longer efficient, because it is better economy to purchase new equipment. Apply that rule to your plumbing equipment. Do you get ample hot water, is your kitchen sink modern, comfortable, convenient, efficient, your bathroom up-to-date? If not, it means that household tasks are taking too long, costing too much and wasting money. May we discuss it with you?

(In this space Your Name, etc.)

For one column space

YOU can get housework done with old-fashioned plumbing—but you pay for it. You pay for it in your own time and wasted energy and over-fatigue, or you pay for it in the inefficiency of help. Modern plumbing means efficiency, less drudgery, more work with less expenditure of energy. Come in and see our display.

(In this space Your Name, etc.)

A two-column newspaper ad

Dear Madam:

When business men get together they talk about something that they call "obsolescence." That is, they talk about the need for scrapping machinery that has outlived--not its usefulness, mind you, but the fine edge of its usefulness. They don't want machinery that performs under par, however slight the degree.

Those same business men do not always realize the parallel between household equipment and the machinery of business. Yet there is, perhaps, something more vital than a money cost going out of the home where, let us say, old-fashioned plumbing equipment is still in use. Wasted energy, wasted time, annoyance, over-fatigue--all these are costly, whether the work of the household is done by a maid or by the lady who is at its head.

We are recommending a number of changes to homes this spring--a new water heater, the new and convenient kitchen sinks, efficient bathing equipment--a number of things that will lessen drudgery and save time and energy.

We invite you cordially to come into our display room and see how beauty and utility have been combined in modern plumbing equipment.

Very truly yours,
HARRY BROWN

A plumbing sales letter

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING—without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve—three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

BUSINESS AND HOUSEHOLD TERMS

"In business we speak of 'obsolescence' when we mean that a piece of machinery or a building has outlived its efficient usefulness," says Harry Brown, local plumbing contractor. "It's a nice word. But when something has outlived its efficiency in the home we just say that it's old-fashioned.

"Perhaps that's why we don't realize that there is the same waste of time, energy and money when a piece of household equipment is worn out, as when a piece of business machinery has to be scrapped. Maybe if we'd think of 'obsolescent' kitchen sinks, and bath tubs, and water heaters, and other plumbing appliances, instead of thinking of them as 'old-fashioned' the economic value of replacing them would be clearer—to the head of the house, anyway."

Hand this publicity item to your newspaper

"Before" and "After" Copy

The copy below is built on the idea of basement modernization, as it is made possible by the installation of a radiator heating plant. Use this "before and after" copy in your community—and convince your people that it will be to their advantage to tear out the old, inefficient heating equipment.

A two-column newspaper ad

YOUR basement represents about 15% of the total cost of your home. Are you getting that much value in use out of it? Few homes do—but more and more home owners are coming to realize that they may add all of the basement space to the liveable portion of the house—with a relatively small additional investment. A modern heating plant means a usable basement. May we tell you about it?

(In this space Your Name, etc.)

A Cool, Clean, Spacious Playroom

WHERE the children may enjoy themselves during the very warm weather, or during stormy days; and yet not put you to the inconvenience of having them "all over the house." A modern heating plant will make almost the entire area of your basement available for playroom space—or recreation room for the adults of the family. We'd like very much to show you some examples of basement modernizing.

(In this space Your Name, etc.)

A single column ad

A NATIONAL WASTE —BASEMENT SPACE

"While we're talking about national economies," says Harry Brown, local heating contractor, "let's touch on one of the greatest—the waste of good basement space.

"It takes about 15 per cent of the cost of a home to make the basement. Yet think of the many thousands of homes where a basement is...well, you know what I mean—a sort of glorified wastebasket.

"Thousands of homes in the last year or two have decided to make the investment in the basement usable. By taking advantage of the room and the cleanliness made available by a modern heating plant, they have added what amounts to almost the whole area of their first floor to the usable space in the house. That's what I call good economy."

Give this publicity item to your local newspaper

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Madam:

Do you know that you have a space as large as your entire first floor, which is going to waste as far as convenient, comfortable living is concerned?

I mean the basement, of course. When you realize that it takes about 15 per cent of the cost of a home to supply this basement space, it makes one wonder why we don't make it usable and livable.

This thought has led thousands of home owners in the past year or two to modernize their basements. First, taking advantage of the fact that a modern heating plant takes up only a few feet of floor space, and leaves head space clear, they have discarded the old, dirty type of plant, which occupied a third of the basement, and most of the headroom. They now have cleanliness, and convenience, in a measure that most people never think of as possible, they have become so accustomed to the cluttered basement.

This very desirable result can be achieved easily and conveniently. If you will telephone, we'll be glad to send a competent man to discuss the matter with you in detail. No obligation whatever--and we do believe you'll be interested in seeing some examples of basement modernization.

Very truly yours,
HARRY BROWN

A heating sales letter)

Letters to the Editor

The Financial Statement, Again

To the Editor:—

I was very much interested in the financial statement published in your January 10 issue. One thing I am particularly interested in was not written up, "How was it done?" I am not going to say that "There just ain't any such animal," but if that business is conducted anywhere near * * * I would like to have a visit with the owners. I am making a personal matter out of this and would like to ask you to get permission of those owners for you to tell me who they are and where they are located. I feel that I would be willing to spend quite a little sum just to have a visit with men that are really making a nice profit. I have done a nice business this year, increased my volume and have made a fairly good profit, but would like to find a way to step the profit up a couple or three more points or else cut the overhead down.

I know this may be a confidential report, but just the same I imagine the report was made to help and encourage others in the business, and with that thought in mind these men may be willing to tell us how it was done.

If this is not asking too much, I would appreciate getting in touch with men that actually have the goods instead of theories. This one particular case may not be a convenient case for me to follow up, and you may have other cases near here where I can get some good ideas.

I have decided to take a few side trips during the spring and visit some of the contractors that are really outstanding as far as business is concerned. I get a great deal out of your stories, but I believe a personal contact would be well worth while.

(Signed) C. S.

From Another Interested Reader

To the Editor:—

I read with a great deal of interest the story of A. J. Peel, about the firm which made such a substantial profit during 1930. While we lost no money last year, we had a hard time "holding our own" and, had our volume held up to what we went after, we would have made what we started out to make.

Although the author uses a fictitious name in this story, I would like to meet the manager of this firm and know where he is—of course, not to open opposition to him, as we already have a very nice business—simply to know if he is far enough so that we cannot hurt him and, at the same time, close enough so that I could discuss a few things with him and, possibly, about some of his methods.

In other words, I am like the man who went to the circus with fifteen children but couldn't afford to let them all see the circus and who was peeping through the fence, looking at the animals, when the gatekeeper came along and said gruffly:

"What are you doing there?"

The fellow turned around, all excited, and said, "Well, I'm a man with fifteen children and as I cannot afford to let them all see the circus I want the children to look at the animals through the fence."

"Are all of these fifteen your children?" asked the gatekeeper.

"Yes," answered the man.

"Then come on in free," said the keeper. "We want our animals to get a look at you."

I, too, want to get a look at and talk with the person who has been able to produce this type of profit during 1930. There, surely, is something way above the average in his general make-up and in his method of business that I would like to be able to follow.

Inasmuch as imitation is the sincerest form of flattery probably, if you forward a copy of this letter, he will be glad to get in touch with me.

I assure you that I always appreciate your paper and get lots of good information out of it.

With best wishes, I am

Yours very truly,

Texas. (Signed) A. C.

More Information About the Financial Statement

To the Editor:—

You may give these parties my name and address, and this letter if you wish, but I do not believe it would warrant any great expenditure on their part to visit us. We have nothing visible or outstanding that would indicate that we are exceptionally successful. I have seen many stores that make a far better appearance than ours. Shops that are apparently neater and more systematic. Offices that are more pretentious. We are cramped for show, shop and office room. We do have an excellent warehouse.

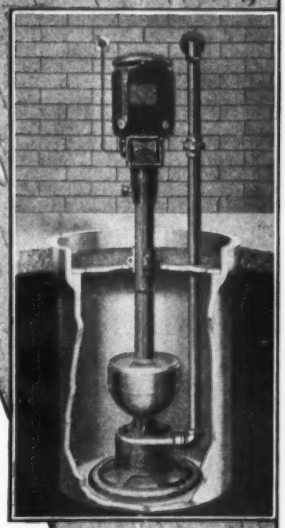
What we have endeavored to do is to build up an organization that is well balanced and efficient in all its branches. This, I believe, is where most business men fall down. Of all the fine stores and display rooms I have seen, very few are complete. Practically all of them have left out a very important feature, that is, an appearance of being busy and completeness in detail of merchandise, which presents the same problem in a large or small store. It is the same on a small or large scale.

The article on our statement in your publication was clear and complete, as well as could be made from the statement. Not being familiar with what is going on back stage, it was not possible for you to show the actual operation. This, of course, leaves the reader with a sense of mystery and the probability of some extraordinary performance.

For example, I will refer to the organization. From your statement I would judge that it has quite an executive force, which is poorly paid and penny pinching. It happens that the case is exactly the reverse. "Brothers" on our name is misleading. There is one sole owner and executive. Office salaries are for a young lady bookkeeper.

Salesman and stockman, as shown on statement, is for a young lad from the country that never handled the tools. We just recognized a lot of latent ability that is fast coming to the surface. He is salesman, stockman, general superintendent, foreman, collector, estimator, advertising manager, purchasing agent, and diplomat extraordinary. His salary is increasing rapidly and he

when it RAINS *and* RAINS *and* RAINS



Penberthy Automatic Electric Sump Pump

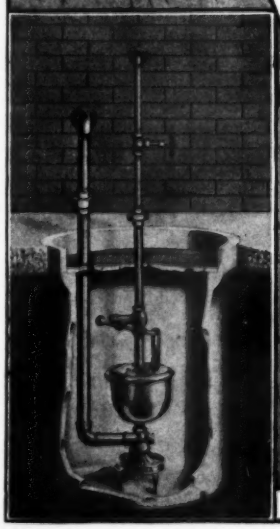
Increased Profits for the Plumbing Contractor

THIS is the time of year when it rains persistently, and many home owners are considerably annoyed with wet basements. The suggestion of a timely remedy for such a condition will bring the plumbing contractor many profitable jobs.

The effective remedy is a Penberthy Pump . . . either an automatic electric unit, or an automatic water operated unit, depending upon the conditions. Both types carry an attractive profit. Either one is easy to install, and profits will not be dissipated through servicing . . . because Penberthy Pumps are reliable and free from operating troubles. Being constructed entirely of copper and bronze, they are immune to corrosion.

Penberthy Pumps are carried in stock by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY
DETROIT
Canadian Plant Windsor, Ont.
Established in 1896



Penberthy Automatic Cellar Drainer (Water Operated)

PENBERTHY PUMPS
PREVENT FLOODED BASEMENTS

PENBERTHY PRODUCTS

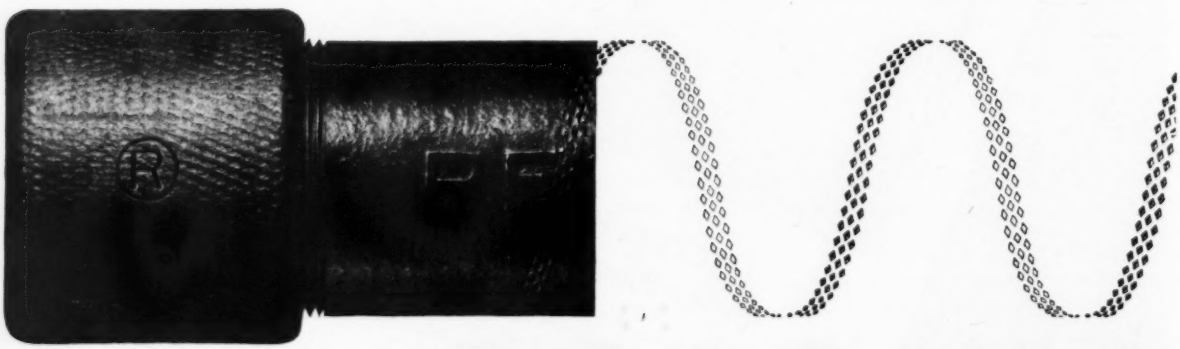
WHY BLAME THE PIPE

when the boiler is probably guilty?

MANY an honest length of pipe has had its reputation blackened because boiler sediment caused it to deliver rusty red water.

But if the pipe is Reading genuine Puddled Iron Pipe, you'll have no difficulty in finding the real culprit. For Reading Pipe has proved, in thousands upon thousands of installations, that it resists red rust throughout the entire life of a building! And of course, Reading Pipe is never attacked by swiftly acting *green* corrosion that so often destroys some kinds of alloy pipe.

When your customers want the dependability and economy that true iron pipe has always given, sell them Reading genuine Puddled Iron Pipe. And look for the permanently indented Reading Spiral—it's your best protection from substitutes.



READING PUDDLED IRON PIPE

For information and quotations address

READING IRON COMPANY

READING, PENNSYLVANIA

Atlanta, Baltimore, Boston, Buffalo, Pittsburgh, Cincinnati, New York, Detroit, Houston, St. Louis, San Francisco, Seattle, Chicago, Philadelphia, Tulsa, Los Angeles, Kansas City

You must get genuine Puddled Iron Nipples with Reading Pipe . . . the best combination for soil, waste, vent and inside conductor lines.

READING PRODUCTS

Pipe Tubing Casing Nipples Couplings
Bar Iron Blooms Cut Nails Boiler Tubes

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

does not think he is overworked. I have time for civic affairs, belong to numerous clubs, director in several organizations and corporations. Connected with other businesses. President of the Association and always on a number of committees for every conceivable purpose.

My golf may be rotten, but I am paying an instructor for a winter's course to improve it, and the young lady in the office does not even think of working after hours.

Salaries as shown are my wife's allowance. My drawing account is about the same as her allowance. Drivers, truck expense, etc., is made productive wherever possible. The items of expense show low because overhead is turned into production as much as possible.

The men believe they have the best job in the country, because they are part of an organization and have responsibilities—realize that their work with the tools is only half their job. Apprentices must take technical as well as practical training. With wages at $11.00 per day, we have a number of men that receive over $3,000 per year. Getting the utmost efficiency out of everyone makes it easy for all. We want the best there is in everyone and will gladly pay for it. If reports show that an employe's salary is at a standstill, he is let out as undesirable.

Being a constant reader of your publication, I quite frequently observe in various articles that someone is losing sight of the fundamental principles of business, through an overabundance of enthusiasm over some pet idea. Any one particular phase of a business that is worked up, at the sacrifice of the other branches of the business, is bound to have a detrimental reaction.

We are glad to meet anyone in our profession at any time, are pleased to give any desired information and will cheerfully grant them all the time they want.

Would like to analyze in detail the statement as published. I believe an analysis from the inside would be quite interesting.

Our legislature is in session. We are busy introducing a bill for a state code. It is necessary that I leave for the capitol to take care of matters there that are quite urgent at this time.

I am happy to be able to present material that may benefit someone, and hope the opportunity will present itself again.

Yours truly,

(Signed) "X."

The Apprentice Problem

To the Editor:—

Your editorial touching on the lack of interest in apprentices in a recent issue is much to the point.

It is a strange situation in which we find our national associations and our manufacturers urging greater development of our industry and no one, comparatively speaking, is concerned with the question of who and what caliber of man is being developed to carry on.

Our engineering and merchandising methods are being developed by careful study, but the efficient, intelligent and skilled man power that will always be needed in a steady stream is supposed to, somehow or other, be in some miraculous manner, always there.

The charge can be made and easily supported that the average contractor and journeyman in the business is not interested in training good apprentices. It is to be wondered at times whether fear is at the bottom of this lack of interest.

It is greatly to the credit to those national associations who have vision enough to maintain educational departments for the avowed purpose of training the men in the industries.

Credit is due to those local and state associations which do give thought to this important matter of apprentices. Many trade schools and their excellent instructors are bright spots in an otherwise dark situation.

If all states and the associations in them would follow the example of Wisconsin, we could have great hope for a happy solution of this problem.

It is another case of getting out of a thing what you put into it.

We must put into effect a real system of apprentice development if we really want the kind of men that we say we want and need.

When we display an intelligent desire for this necessary object and put the needed machinery to work we will have this task accomplished.

Yours very truly,

John J. Shanahan,

Formerly Chairman of the Apprenticeship Committee, N. A. M. P.

How Much Water Will Air Drink?

(Continued from Page 40)

1st: 460 deg. + 70 deg. = 530 deg.
2nd: 460 deg. + 172 deg. = 632 deg.
3rd: 530 deg. ÷ 632 deg. = 0.838
4th: 12000 × 0.838 = 10,056 cu. ft. at 70 deg.

Volume of air required to be introduced at the outside temperature (0 deg.):

1st: 460 deg. + 0 deg. = 460 deg.
2nd: 460 deg. + 172 deg. = 632 deg.
3rd: 460 deg. ÷ 632 deg. = 0.728
4th: 12000 × 0.728 = 8736 cu. ft. at 0 deg.

Moisture Required: One cu. ft. of saturated air at 70 deg. Fahr. contains 0.001153 lb. of moisture.

At 40 per cent relative humidity, one cu. ft. contains 0.40 × 0.001153 lb. = 0.0004612 lb. of moisture. 10,056 (cu. ft. of air at 70 deg.) × 0.0004612 (lb.) = 4.638 lb.

Moisture required per hour to maintain a relative humidity of 40 per cent.

Moisture Content of Outside Air

One cu. ft. of saturated air at 0 deg. Fahr. contains 0.000079 lb. of moisture.

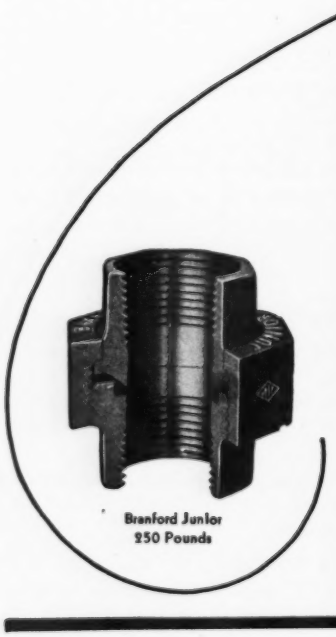
At relative humidity of 60 per cent, one cu. ft. of air contains 0.60 × 0.000079 lb. = 0.0000474 lb. of water vapor.

Moisture contained in outside air introduced per hour = 8736 (cu. ft. outside air per hour) × 0.0000474 = 0.414 lb. per hour.

Moisture required to be added per hour = 4.638 lb. — 0.414 lb. = 4.224 lb.

Moisture required to be added to outside air for 24 hour period = 24 × 4.224 (lb.) = 101.376 (lb.) ÷ 8.33 (lb. per gallon) = 12.17 gallons for 24 hours.

BRANFORD UNIONS



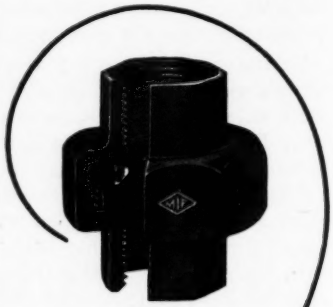
Branford Junior
250 Pounds

The excellence of Branford Unions has maintained for them the finest mark of confidence skilled workmen can show. That is the continued use of Branford Unions over a great number of years.

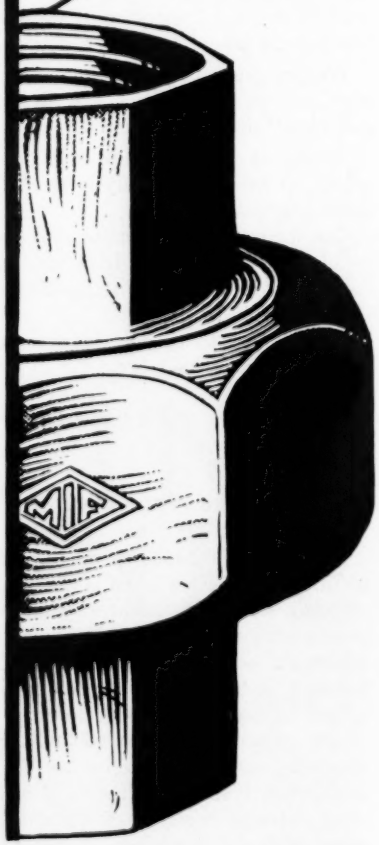
Never once have these men, who have placed their complete confidence in Branford Unions, found them lacking or varying in quality. Never once have they found Branford Unions misrepresented.

Branford Unions are built to the most exacting standards possible to develop. They make installation work easier and better.

Your jobber knows—
ask him.



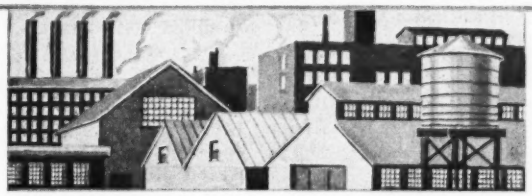
Branford
350 Pounds



MALLEABLE · IRON · FITTINGS · COMPANY, BRANFORD, CONN.

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN



Richardson and Boynton Co. Buys Newport Boiler Co.

Richardson & Boynton Co., New York City, has purchased the Newport Boiler Co., Chicago, including its patents, patterns, equipment, engineering records and rights, and the Newport company's line of heating boilers is now being manufactured and sold by the Richardson & Boynton Co. The latter firm's plant at Buffalo, N. Y., is being equipped for the production of the Newport products.

R. R. Owen, who for the past six years has been in charge of sales for Newport Boiler Co. in the New York metropolitan district, together with the company's established organization in that territory, has joined the Richardson & Boynton Co. L. H. Halliday, vice president and general manager of the Newport company, has become associated with the Oliver Farm Equipment Co., the parent organization of the Newport Boiler Co.

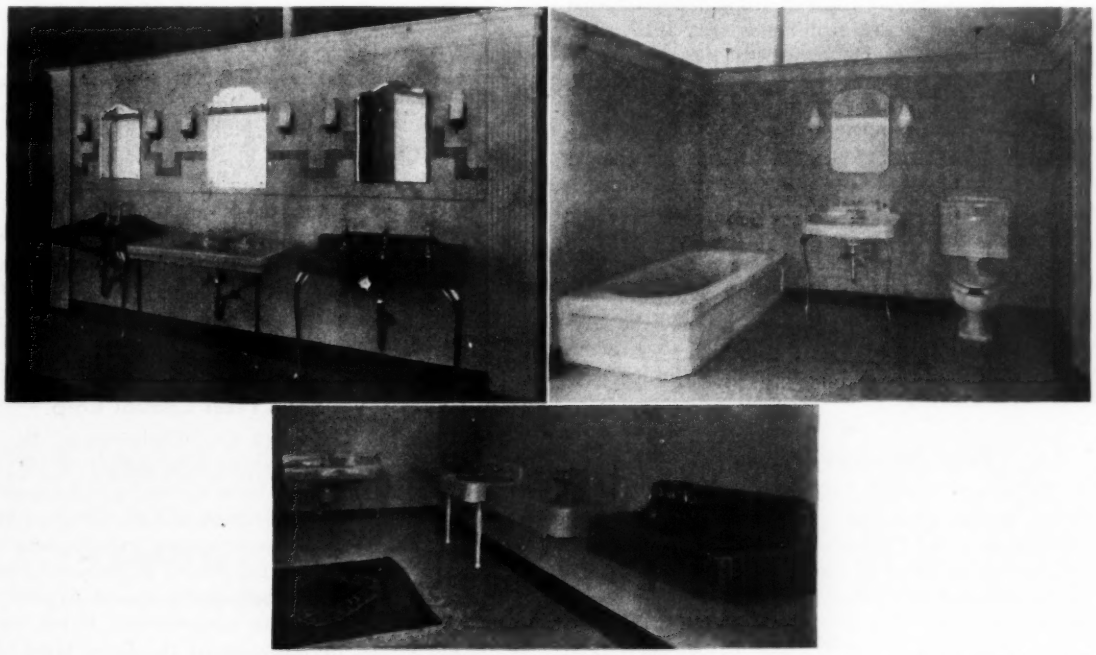
Corcoran Supply Co. Opens New Display Room

The Corcoran Supply Co., Brockton, Mass., formally opened its new display room at 300 Montello street on Saturday, March 14. The first visitors commenced arriving shortly after noon and the building remained open until quite late in the evening for inspection purposes. The officers and employes of the company were all present to welcome the many guests and to escort them through the building. Reproduced on this page are several views of the attractive new display room.

◆

Buys Terre Haute Nipple Manufacturing Co.

The Shaw-Kendall Engineering Co., Toledo, Ohio, manufacturer of pipe coils, pipe bends and pipe fittings, has purchased the Terre Haute Nipple Mfg. Co., Terre Haute, Ind., manufacturer of pipe nipples. The Terre



Views of the attractive new display room opened recently by the Corcoran Supply Co., at 300 Montello street, Brockton, Mass.

Haute plant has been moved to Toledo and manufacturing operations are being confined to that point. Louis Plost, who has been in charge of sales for the Terre Haute Nipple Mfg. Co., will continue with the new organization.

The officers of the Shaw-Kendall Engineering Co., are R. M. Bellman, president and general manager; H. A. Knowlson, vice president and sales manager; E. M. Brown, secretary, and Howard Carroll, treasurer.

◆

A. M. Byers Co. Moves Philadelphia Office

A. M. Byers Co., Pittsburgh, Pa., has moved its office in Philadelphia, Pa., from Room 1411 Morris building to Room 603, in the same building. The new location provides the company with larger quarters. E. L. MacWhorter is manager of the Philadelphia office.

◆

Thermax Corp. Moves Offices to Chicago

Thermax Corp. has moved its general sales offices from Seattle, Wash., to Chicago, Ill., in order to provide a more central location for its operations. The new Chicago address of the corporation is Builders' building, 228 North LaSalle street.

◆

Moves Offices to Lafayette, Ind.

The general offices of the United Stoker Corp. are now located in Lafayette, Ind., the organization having recently become affiliated with the Schwab Safe Co., of that city. The United Stoker Corp. was formerly located in Peru, Ind.

◆

Atlanta Jobber Moves to Larger Quarters

The Walker Supply Co., Atlanta, Ga., recently moved its office and warehouse from 60 Spring street, SW, to its new home at the corner of Gilmer and Courtland streets, that city. The company was originally established at the Spring street address in September, 1924. The new quarters provide the company with increased space and facilities for handling its business. Adequate parking space is available for customers desiring to bring prospects to the company's display room. The Spring street property has been sold to the Federal Government as the site for a new post office. F. C. Gunckel is president of the Walker Supply Co., and C. E. Smith, treasurer.

◆

Will Represent Weil Pump Co.

The Weil Pump Co., Chicago, has appointed the Layman-Rummel Co., Westinghouse building, 200 Ninth street, Pittsburgh, Pa., as its distributors and sales engineers in the Pittsburgh territory.

◆

Buys American Valve Co.

The American Valve Co., Coxsackie, N. Y., has been purchased by the principals of Hudson Brass Works, Inc., 16 Nassau street, Brooklyn, N. Y., Theodore Guterman, president, and Samuel Gade, vice president, according to an announcement made April 3 by the former executive. The executive offices and general warehouse have been established at the Brooklyn plant, where both the stocks of fittings manufactured by the Hudson Brass Works and the products of the American Valve Co. are concentrated for distribution. Mr. Guterman is in charge of the interests of the company in the Brooklyn works, while Mr. Gade supervises activities at the plant in Coxsackie. The purchase amalgamates the interests of two long established concerns, the American Valve Co. having been organized thirty years ago and the Hudson Brass Works nearly a quarter of a century ago. Plans for increasing production in the modern concrete plant of approximately 75,000 sq. ft. situated in a twenty acre plant, entailing the addition of machinery at Coxsackie, are under consideration.

◆

Moves Chicago Office to Larger Quarters

The Lincoln Electric Co., Cleveland, Ohio, has moved its Chicago office to a new building at 1455 West 37th street from 53 West Jackson boulevard. This move provides the company with increased space for sales, service and storage of stock.

◆

Milwaukee Stamping Co. Appoints New Representatives

The Milwaukee Stamping Co., Milwaukee, Wis., has appointed the following representatives for its line of unit showers:

H. C. Pommerenk, 411 Arthur building, Omaha, Nebr., will represent the company in the states of Iowa and Nebraska. R. E. Holcombe, 1265 Lucille avenue, S.W., Atlanta, Ga., is the company's new representative in Georgia and North and South Carolina.

The Rocky Mountain Architects & Builders Service, with headquarters in the California building, Denver, Colo., is the new representative of the company in Colorado and Wyoming, east of a north and south line drawn along the eastern boundary of Utah.

◆

Revere Copper & Brass, Inc., Moves Executive Offices

The executive, general sales, and advertising departments of Revere Copper and Brass, Inc., are now located in the New York Central building, 230 Park avenue, New York City, instead of at Rome, N. Y.

The officers of the company who will now make New York City their headquarters are C. Donald Dallas, president; George F. Stanton, vice president and general sales manager; and J. A. Doucett, vice president and assistant general sales manager.

The treasurer's office and general accounting department will remain in Rome, N. Y.

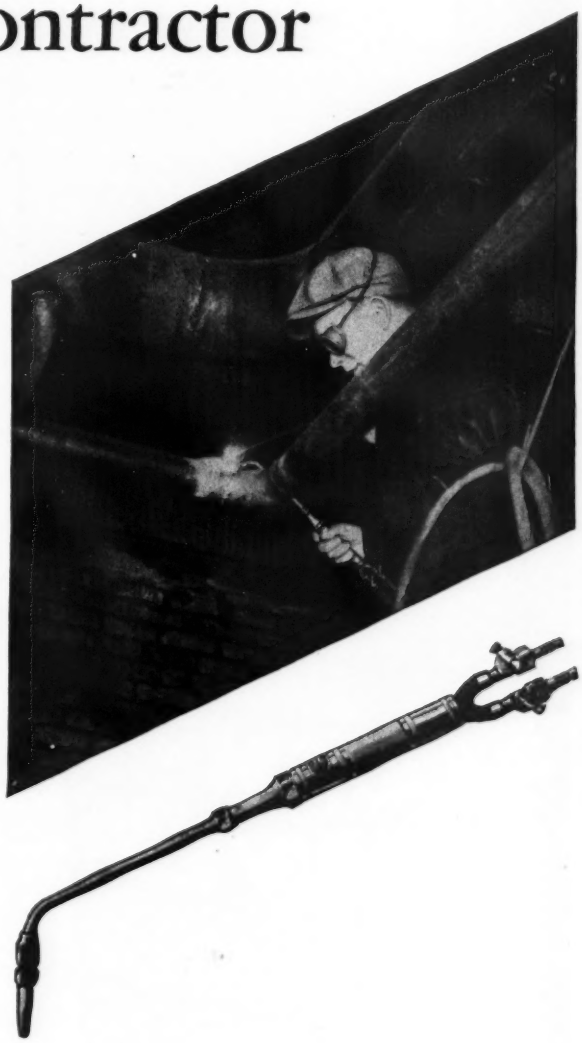
◆

Takes Over Penn Heat Control Corp.

The Penn Heat Control Co., Philadelphia, Pa., in which the General Electric Co., Schenectady, N. Y., has a controlling interest, has been formed to take over all assets, including patents and good will, of the Penn Heat Control Corp., that city, specializing in apparatus for automatic regulation of temperature in household heating. The new company will continue and expand the work previously done by the corporation. It will retain the personnel and organization of the Penn Heat Control Corp. as the basis of its operation.

More Profits for the Plumbing and Heating Contractor

The trend toward modern oxwelded design is a distinct advantage and a real opportunity for the Plumbing and Heating Contractor equipped to do oxwelding.



PREST-O-WELD welding and cutting outfits offer you the kind of equipment that will meet the requirements of the most exacting oxwelding specifications.

Your jobs require the making of bends, making of fittings, cutting of pipe into suitable lengths, welding of pipe into sections, and the use of tie-in joints . . . all of which are efficiently produced with a Prest-O-Weld outfit. The saving in materials, pipe, fittings and time means added profits to you.

AND . . . you can easily afford to be up to date with Prest-O-Weld equipment...It is moderately priced.

PREST-O-WELD

WELDING AND CUTTING APPARATUS

Sold by Jobbers Everywhere

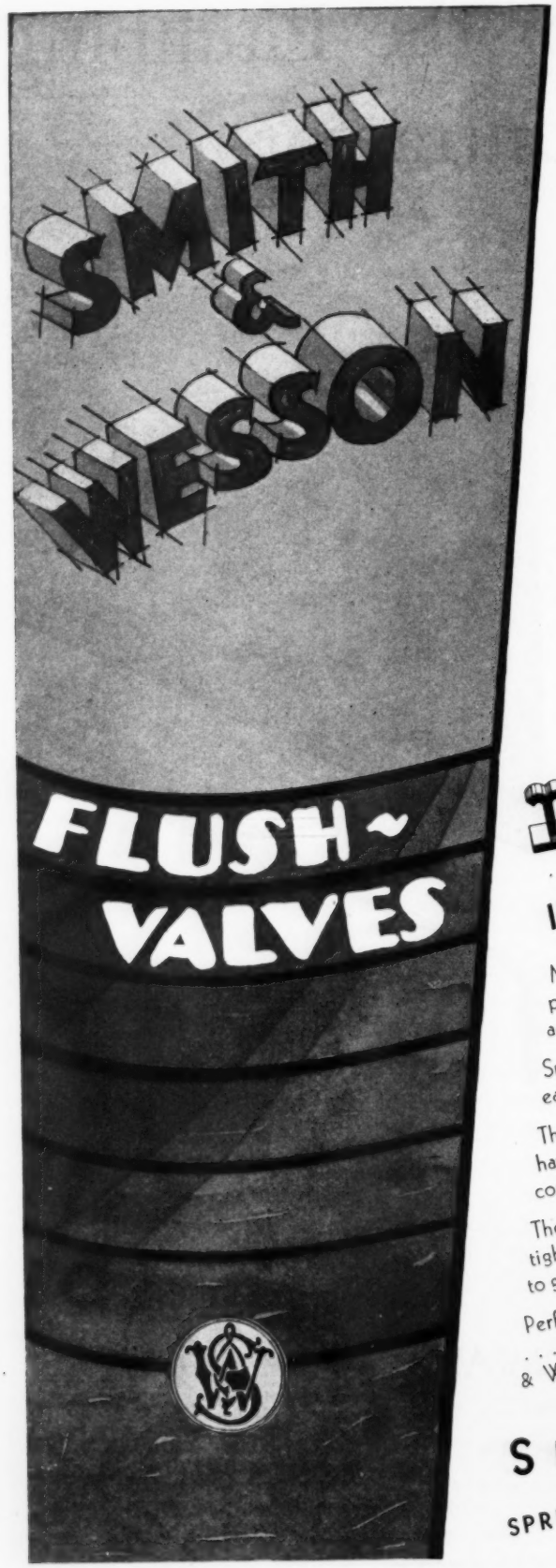
THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

Atlanta	Denver	New York
Baltimore	Detroit	Philadelphia
Birmingham	El Paso	Pittsburgh
Boston	Houston	St. Louis
Buffalo	Kansas City	Salt Lake City
Chicago	Los Angeles	San Francisco
Cincinnati	Milwaukee	Seattle
Cleveland	Minneapolis	Tulsa



modern

INSTALLATION—

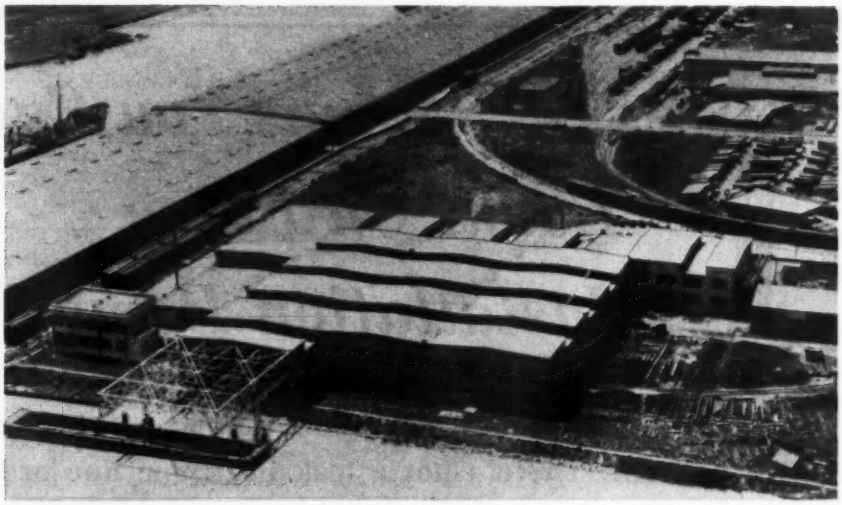
Modern installation must approach perfection. Yet it must be accomplished against time.

Smith & Wesson Flush Valves are easy to rough-in, easy to make up. They go on the line easily because they have been carefully planned to overcome ordinary difficulties.

Their reduced outside dimensions save time in tight places and the position in which they are to go—right or left hand—makes little difference.

Perfect Machining . . Perfect threading of unions . . . Light Weight . . . these are the reasons Smith & Wesson Flush Valves are easy to install.

SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD MASS.



The newly acquired steel warehouse and rail-water terminal of Jones & Laughlin Steel Corp., at New Orleans, La. Products from the firm's mills in Pittsburgh will be shipped here via the Ohio and Mississippi rivers, a distance by water of 2000 miles

Jones & Laughlin Acquires New Orleans Plant

Jones & Laughlin Steel Corp., Pittsburgh, Pa., has purchased the Lukens Steel Company's plant at New Orleans, La. The acquisition of this plant gives Jones & Laughlin a large, modern steel fabricating, warehousing and distributing base at the mouth of the Mississippi river which can be served directly by river transportation from Pittsburgh, as well as by rail.

The newly acquired warehouse and fabricating shop are on a site of approximately 17 acres on the turning basin of the Industrial Canal about one mile from the Mississippi river and about six miles from the center of the city. The buildings consist of a four-bay steel structure warehouse, fabricating shop and a two story brick office building. The warehouses and shops are fully equipped with traveling cranes, punches, shears and other machinery and tools, and occupy an area in excess of 100,000 sq. ft. The plant has complete rail and water facilities, enabling the interchange of steel products between river barges and the plant, the railroads, or ocean going vessels. According to Jones & Laughlin officials, the plant will be utilized for warehousing merchant bars, structural material, plates, concrete bars, cold finished steel bars, special shapes, junior beams, steel pipe, wire products, and other of the company's products, which will be distributed out of the plant locally in New Orleans and by rail and water transport to customers in the South and Southwest, or on the Pacific Coast and in foreign countries.

◆

Trupar Mfg. Co.'s Distributors Discuss Sales and Service

Trupar Mfg. Co., Dayton, Ohio, at its New York City office and showrooms, 307 Lennox avenue, conducted a three-day convention on March 24, 25 and 26, for the purpose of sales and service school discussion among Greater New York and Northern New Jersey distributor and dealer organizations. The company's distributor organizations in that territory participating were as follows: Sam S. Glauber, Inc., New York City; W. A. Case & Son Mfg. Co. branches at Brooklyn, New Rochelle and Patchogue, N. Y.; Naedele-Janney, Inc., Newark, N. J.; Warren-Balderston Co., Trenton, N. J., and Sullivan County Plumbing and Heating Supply Co., Inc., Liberty, N. Y.

A complete service school was set up for the meeting and conducted by Carl Brandt, factory instructor, while William M. Myers, treasurer and manager of the mer-

Picture taken at the banquet which followed the three-day convention of distributor and dealer organizations of Trupar Mfg. Co., held in New York City. The banquet was given at the Hotel New Yorker

"X" Means You Can Count On Every Installation Being Tight!

Screw on the last fitting and you know that in a few minutes the job will be tight. There's not a leak in a pipe line or boiler after "X" Liquid gets into it. Replacing fittings, hours of extra work, are things to be forgotten when you depend on

"X" LIQUID

REPAIRS LEAKS IN STEAM AND HOT WATER HEATING SYSTEMS, HIGH AND LOW PRESSURE BOILERS

Now you can figure close on your jobs. Even on the most competitive you can make your profit. "X" finds the leaks, sand holes, split nipples and poor threads, fills them and dries almost as hard as metal. It expands and contracts with the metal. Heat and pressure won't budge it.

"X" LABORATORIES—25 West 45th St., New York, N. Y.

Meet Old Boy "X" at the Milwaukee Plumbing and Heating Exhibition—Booths 39 and 40

Old Boy "X" Says:

Order a carton of "X" Boiler Liquid from your wholesaler today

chandising department, with C. H. Grandstaff, district sales manager, New York City, spoke on proper sales methods and guided the merchandising discussions. Fred Geiler, factory engineer and R. E. Honsberger, factory representative, New York City, also addressed the one hundred and fifty guests who attended.

A banquet attended by seventy-five members of the organizations of both the distributors and dealers concluded the three-day program. Several officials of companies of both groups as well as Trupar Mfg. Co. representatives spoke.

◆

Crane Co. Has Attractive Exhibit Room in Portland

Crane Co. of Chicago recently opened a new exhibit room in the downtown section of Portland, Ore., the location being 11th and Alder streets. The company's Portland exhibit rooms were formerly a part of the branch office and warehouse at 14th and Irving streets, outside of the central section of the city. A new warehouse was recently constructed at the latter location.

Since being opened the new exhibit rooms have attracted many visitors. Six large plate glass windows provide an almost uninterrupted view of the displays. On one of these windows, in distinctly fine lettering, is the simple invitation, "Won't You Come In?" This welcome phrase, according to Robert C. Smith, manager of the display rooms, has caused many passersby to come inside.

The inside walls are in neutral light shades as are also the lower floors. The upper floors are of rubber tile in artistic designs. The window drapes are of a soft blue-green shade in harmony with the general color scheme of the main display room.

The 5,000 sq. ft. of floor space has been used to excellent advantage in arranging the many pieces of plumbing and heating equipment, ventilating and hot water accessories, and a display of hospital equipment on the lower floor. The entrance and reception space, although a part of the main room which has been left open and free of partitions, is particularly attractive, as may be seen in the accompanying picture.

F. A. Nitchy is manager of the Portland branch of Crane Co. In the display room, Mr. Smith is assisted by Charles A. McGinn, Orris D. Harbert and Maybel F. Sheasgreen.

◆

Opens Offices in New York City

Bay Ridge Specialty Co., Inc., Trenton, N. J., recently opened offices at 67 West Forty-fourth street, New York City, where its entire line of products will be permanently exhibited. P. K. Hexter, director of sales, is re-organizing the company's distribution factors through the United States and Canada. Under the new arrangement four sales representatives are covering the metropolitan New York area.

◆

Program for Midwest Coal Conference Nears Completion

The 1931 Midwest Bituminous Coal Conference, sponsored by the University of Illinois and Purdue University, will be held at the University of Illinois, Urbana, May 21 and 22. A recent announcement by B. R. Gebhart, chairman of the program committee, indicates that many interesting subjects are to be discussed at the meeting. Some of those most closely associated with the heating contractor's business are:

Interior views of the exhibit rooms opened recently by Crane Co. of Chicago in the downtown section of Portland, Ore. The top picture shows a portion of the general display room. At the lower left is the reception room, and at the lower right the entrance to the basement display

"Comparative Heating Value of Fuels in the Research Residence," by A. C. Willard, professor, heating and ventilation, and head of the department of mechanical engineering, University of Illinois.

"Recommended Setting Heights for Heating Boilers Equipped with Mechanical Stokers," by E. L. Beckwith, chairman, engineering committee, and past president of the Midwest Stoker Association, Chicago.

"Operating Tests of Stokers in Service." This topic will include a comparison of coal and oil heating at the St. Clair and Eastgate hotels in Chicago.

"The Committee of Ten—Its Activities and Purposes," by Oliver J. Grimes, managing director, Committee of Ten, Coal and Heating Industries, Chicago.

Other organizations sponsoring the conference, besides the two universities, are: Coal Trade Association of Indiana, Fuels Division of American Society of Mechanical Engineers, Illinois Coal Bureau, Illinois State Geological Survey, Midwest Stoker Association, National Association of Power Engineers, and National Association of Purchasing Agents.

◆

Says Improving Statistics Will Forestall Business Depressions

Colonel Arthur Woods, chairman of President Hoover's emergency committee on employment, speaking at a luncheon of the New York Building Congress on March 27 at the Commodore hotel, New York City, said it is his belief that sources of more prompt, complete and significant statistical information on business conditions will be developed and their intelligent use by business men will be of aid in forestalling periods of industrial depression. "We have had a constant increase," he said, "in the flow of governmental and private information on the business situation, for the past ten years. Information on the great extent of brokers' loans has been available, as well as detailed information on stocks of goods, which were accumulating pretty heavily in some industries. Yet we ran into this last depression without much idea as to when it was coming, how severe it would be, or how long it would last."

Building, he continued, is the barometer by which industrial activity can be observed, as any change forewarns of correspondingly upward or downward movements. The total amount of construction in the United States in a normally good year is ten billion dollars, he stated, and of this public works—federal, state, county and municipal—amount to about three and a quarter billions. Of this amount, he added, approximately 80 per cent of the cost of such construction goes to labor.

◆

Will Distribute Heating Products

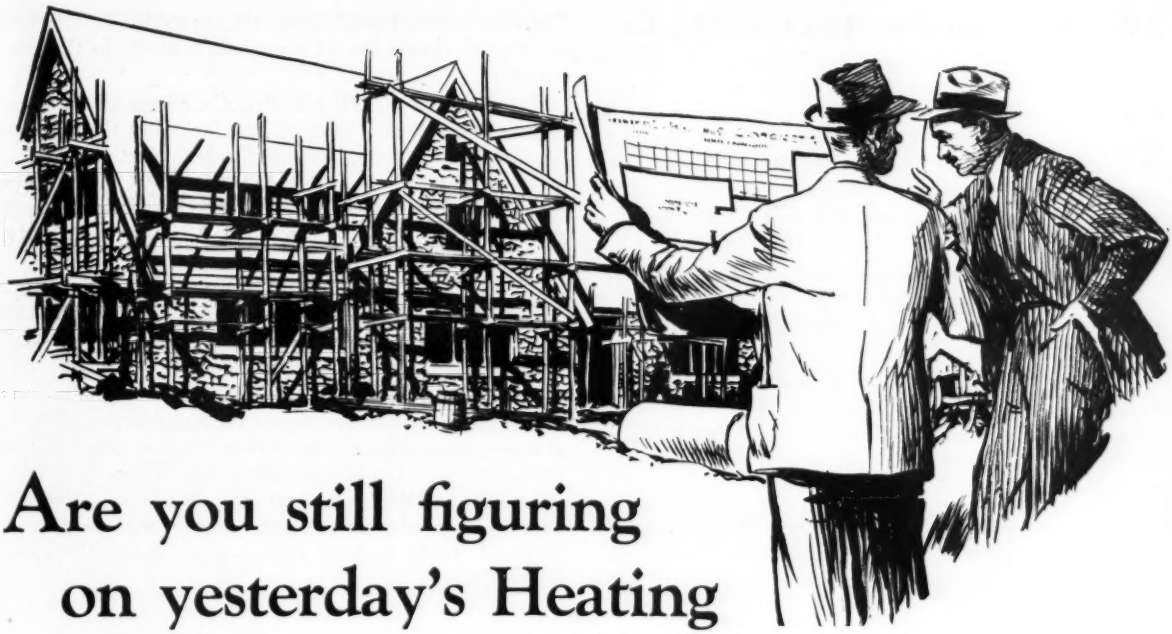
Francis M. Brooks, Jr., resigned March 15 as vice president and sales manager of the Molby Boiler Co. and the Central Radiator Co., New York City. Mr. Brooks has opened a warehouse of his own at 200 Basin street, Williamsport, Pa., for the distribution of boilers, radiators and heating specialties. Covering central and eastern Pennsylvania and the entire state of Maryland, he is also opening a series of warehouses throughout the territory where he will stock heating materials. Until 1927 Mr. Brooks was sales manager of Abram Cox Co., New York City, and in 1929 was elected to the position from which he just resigned.

◆

Move Offices in Denver, Colo.

A. Wallace & Company and the Illinois Engineering Company have announced the removal of their offices from 2971 Irving street to 3060 West Thirty-second avenue, Denver, Colo.

These three leaders in the plumbing and heating industry were met recently by a photographer in a railroad station in Portland, Ore. M. J. Beirn (right) of New York City, vice president and general manager of sales, American Radiator & Standard Sanitary Corp., and John M. Olmsted (center), also of New York City, vice president of Walworth Co., had just alighted from the Cascade Limited when they were joined by F. X. Urquhart (left), manager of the Seattle, Wash., branch of American Radiator Co.

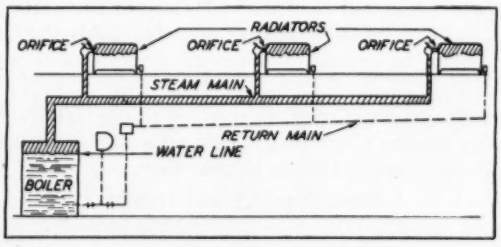


Are you still figuring on yesterday's Heating Systems for the needs of today?

The new fuels, oil and gas, the mechanical stokers, new light-weight radiators and thermostatic control devices put new demands on the heating system.

In place of a steady flame varying slowly in intensity, gas or oil fuel, for example, thermostatically controlled, produces an intermittent burning—entirely off a few minutes and then on full-blast. In ordinary *unbalanced* systems this means cold radiators then hot ones. It means underheating in some rooms and overheating in others, depending on how well the thermostat has been located. To overcome these conditions *the system for these modern fuels must be balanced.*

The Improved Webster Systems are "built to order" to meet these new conditions. In these Systems the distribution of steam to each radiator is determined in advance by installation of correctly sized metering orifices so that *all radiators get steam at the same time and in the same proportion regardless of their distance from the boiler.*



This *remarkably balanced distribution,* together with the basic design of the well-known Webster System equipment, make the Improved Webster Systems the last word in heating comfort and economy.

If you are after *preferred business* in your locality, the kind of business that doesn't have the "heart cut out of it" in the bidding stage, a thorough knowledge of the Improved Webster Type "R" and Vacuum Systems is essential. The coupon below will bring you complete information. Send it today.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

a R 29 HC1

-since 1888

Webster

Systems of Steam Heating

D.E.4-18-31

WARREN WEBSTER & COMPANY, Camden, New Jersey:

Please send me your Bulletin describing the Improved Webster Type "R" System and information on modernizing older heating systems

Name..... *Address*..... *City*.....

Will Direct Research for Philip Carey Mfg. Co.

H. W. Greider has been appointed director of research for the Philip Carey Mfg. Co., Lockland, Cincinnati, Ohio. He was for several years the incumbent of the company's industrial fellowship on magnesia products at the Mellon Institute of Industrial Research and more recently, has been engaged in research and development work at its Plymouth Meeting, Pa., and Lockland, Ohio, plants.

The comprehensive investigation on heat insulation which has been in progress at the Mellon Institute for the past fourteen years under the direction of R. H. Heilman is being continued.

A new research laboratory is under construction at Lockland, and will be operated in addition to the company's production control laboratory, the latter being directed by C. J. Pater, chemical superintendent.

◆

Appoints New Distributors

The Penn Electric Switch Co., of Des Moines, Ia., has appointed the Pennsylvania Distributing Co., 2401 Chestnut street, Philadelphia, Pa., as exclusive distributor for its entire line of automatic controls in that territory.

The Pennsylvania Distributing Co. covers all the counties in Pennsylvania east of and including the counties of Franklin, Juniata, Mifflin, Snyder, Northumberland, Lycoming and Tioga; all counties in New Jersey south of a line drawn east and west of the city of New Brunswick; and the states of Delaware, Virginia, and Maryland.

The new connection in no way affects the Penn Electric Switch Co.'s direct representative at Philadelphia, Glen Morris, who likewise covers the same territory, but devotes his activities mostly to contact with manufacturers.

The company also announces the appointment of E. C. Hansen, operating as the Penn Electric Switch Distributing Co., 1328 North 12th street, Milwaukee, Wis., covering all of Wisconsin and upper Michigan. Requirements of manufacturers in this section will continue to be cared for by a direct factory representative working out of Chicago.

Business Personals

C. J. Hills, president of The Haydenville Co., Haydenville, Mass., is well on the road to recovery from a recent illness and is expected to return to his office in a short time.

Walter H. Wild has been appointed sales manager in the eastern territory for the International Boiler Co., of East Stroudsburg, Pa. Mr. Wild will make his headquarters in the Land Title building, Philadelphia, Pa.

J. H. Kriebel has been appointed to the Philadelphia, Pa., sales force of the Spencer Heater Co., Williamsport, Pa. He will make his headquarters at the company's Philadelphia branch, located in the Otis building, that city. Mr. Kriebel has been engaged in the heating business for more than seventeen years, having formerly been associatd with the Bridgman Co. and also with the Hajoca Corp. George H. Hertz is Philadelphia district manager.

John H. Munro, formerly associated with the Atlas Products Co. of New York in the capacity of general sales manager is now affiliated with the Semler Co., Jeanette, Pa. Mr. Munro will have charge of the New York territory and warehouse for the Semler Co.

William K. Mann, manager of the Crane Co. branch at Portland, Me., has returned to his office after having been absent since last November, due to illness.

George G. Landis has been promoted to the position of chief engineer of the Lincoln Electric Co., Cleveland, Ohio. Mr. Landis is a graduate of Ohio State University, where he received the degree of Bachelor of Science in Electrical Engineering. Mr. Landis came to the Lincoln Electric Co. eight years ago after having been associated with the General Electric Co. and later with the Westinghouse Electric Co. First he was in charge of the Lincoln company's experimental activities, later in charge of electrical design of motors and arc welders and more recently he was given charge of mechanical design.

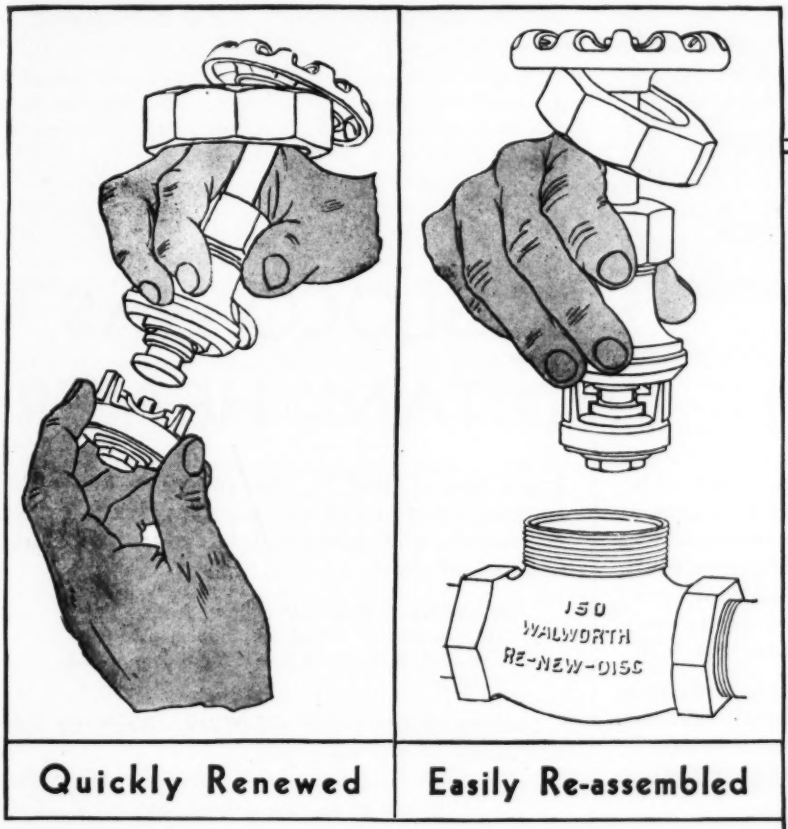
S. N. Foster of Augusta, Maine, and Charles D. Morrissey of Boston, Mass., have been appointed representatives of the Spencer Heater Co., Williamsport, Pa. Mr. Foster will represent the company in the state of Maine, while Mr. Morrissey will cover the metropolitan Boston territory for the company. The New England branch of the company is located at 216 Tremont street, Boston, E. A. MacDonald, district manager.

Alfred Goffinet has become associated with the Knott Manufacturing Co., Tell City, Ind., as general manager of the company. Mr. Goffinet comes to this organization with a number of years' experience in the wood working industry in an executive capacity, and has several plans for expansion under consideration.

Austin L. Adams, Naugatuck, Conn., has been elected a member of the board of directors of The Bristol Co., Waterbury, Conn. Mr. Adams is president of the Naugatuck National Bank and secretary of the J. H. Whittemore Co., of Naugatuck. He also holds the office of director in several corporations in Naugatuck and Waterbury.

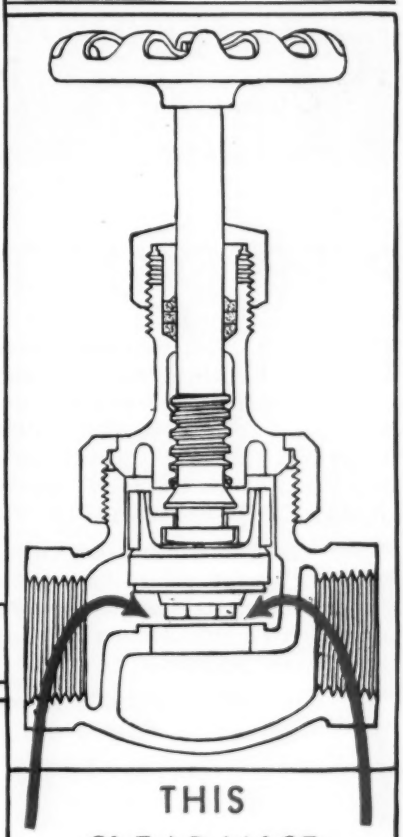
Lawrence Tarry, formerly with the Kellogg-Mackay Co., Kansas City, Mo., is now associated with the Baker Manufacturing Co., in Kansas City.

O. A. Kroos, secretary and treasurer of the Kohler Co., Kohler, Wis., was unanimously elected president of the Wisconsin State Baseball league, a position he filled in 1926, 1927 and again in 1929, at a recent meeting of the board of directors in Sheboygan, Wis. Mr. Kroos has been actively connected with baseball for many years and is one of the most prominently known league officials in the Middle West.



Quickly Renewed | Easily Re-assembled

The Walworth Re-New-Disc Valve for 150 lbs. Steam Service



THIS CLEARANCE **prevents damage to the SEAT in re-assembling Valve**

The Walworth Re-New-Disc Valve is the only valve of this type which has this fool-proof margin of clearance that prevents damage to the seat in re-assembling.

Even though a hurried operator may fail to lock the disc holder on in putting the valve together, the Walworth union bonnet connection can be screwed down tight without bringing the seat and disc into contact.

In installations where such valves must be opened and closed frequently, and especially where speed is desirable, the Walworth Re-New-Disc Valve is your safest specification.

Re-New-Disc Valve

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 19 Rector St., New York, Foreign Representative
. . . Distributors in Principal Cities of the World . . .

VALVES FITTINGS AND TOOLS

Just as Big Ben has revolutionized the alarm clock

GLOCO HAS PEPPED UP THE OLD TANK HEATER

FROM the crude time-guesser we had to be satisfied with a few years ago to wake us up in the morning, to the new modernized Big Ben, was a long step. But no longer or more important than the jump from ordinary coal tank heaters to the new, modernized, more efficient Gloco Red Band hot water machine.

We took the tank heater principle and made it over. We refined it, did away with features that handicapped it, and introduced improvements in design and construction that no other tank heater possesses.

Big Ben entices tens of thousands of Americans out of bed in the morning with his musical voice—but Gloco supplies just as many thousands with plenty of hot water to start the day off right.

45 different sizes to choose from. Every Gloco tested to 300 pounds hydrostatic pressure and guaranteed to 125 pounds working pressure.

Leading jobbers sell GLOCOS. Write us for the name of one near you.

EVINS E. GLORE & SON, INC.
Grand Central Terminal Bldg., New York City

"LOOK FOR THE RED BAND OF QUALITY"

RED BAND TANK HEATERS

Chicago Oil Burner Association Elects Officers

The regular monthly meeting of the Chicago Oil Burner Association was held on Monday evening, March 23, at which time the following officers were elected for the ensuing year: President, W. A. Matheson, Williams Oil-O-Matic Heating Corp.; vice president, C. E. Pullum, Bell & Gossett Co.; secretary-treasurer, R. Hamlin Petty. The board of directors consists of B. K. Eaton, May Oil Burner Co.; H. C. Bitter, Arrow Petroleum Co.; J. W. Owens, Mercoid Corp.; J. L. L. McCormick, Silent Automatic Sales Corp.; F. C. Staples, Johnson Oil Burner Co.

Harry Edward Freund of Vanderhoof & Company was the principal speaker, his subject being, "Association Advertising." Mr. Freund's talk was well received by the members, who entered into a lively discussion of the subject.

J. C. Johnson of S. T. Johnson Co., Oakland, Calif., a guest, spoke briefly concerning association work. Members of the Burning Oil Distributors' Association were also guests for the evening.

◆

St. Louis Chapter Holds April Meeting

The St. Louis Chapter of the A. S. H. & V. E. held its monthly dinner-meeting at the Roosevelt hotel on April 1. The affair was attended by 25 members and 14 guests. President R. M. Rosebrough called the meeting to order, following which the minutes of the previous meeting were read and approved.

Sarco Co., Inc., of New York City, maintained the above exhibit at the Power Show, held recently in that city

L. Walter Moon, chairman of the program committee, introduced E. A. Jones of the Mueller Furnace Co., Milwaukee, Wis., a charter member of the St. Louis chapter. Mr. Jones spoke on the subject of gas heating in homes and particularly on the effect on various appliances in changing from manufactured to natural gas. He described the application of gas heating in connection with air conditioning. Considerable discussion followed Mr. Jones's talk, culminating in a motion that he be given a rising vote of thanks.

The questions received in the question box were discussed. One in particular, an elaborate paper by George Myers on ventilation and air conditioning in bird cages, indicated an exceptionally thorough research on this somewhat unusual subject.

A Letter from Harry G. Nye

April 18, 1931

To the Plumbers and Steamfitters of the U. S. A.

"LET'S ALL BE HAPPY"

Friends:

If you ever chauffeured a mule, or paddled a canoe, or bumped a car over a seasick road, you have had your troubles; bumps and billows and mud and sand.

And then, all of a sudden, you turned a bend—and all of a sudden the water was a smooth as the talk of a promoter, the road was hard and even.

It was neither uphill nor down. You didn't have to put on the brakes or give 'er more gas, to shove on the reins or yell whoa, to back-paddle or break your back.

I think the country is rounding the bend right now! We are getting back on an even keel and a level road.

There have been times these last few years when we were doing sixty an hour—and then ran nose deep in the sand. We have sailed along with a seven-mile current—and suddenly hit the rapids.

Well, we came through both, though sometimes we wondered how. But we've turned the bend, we're hitting an even gait, we're on the right road at last.

The highway ahead is getting smoother and straighter every day.

That's the thing to plan ON and plan FOR now. Common sense in the office and Nye Dies in the shop, and we'll all be happy.

We are rounding the bend!

Sincerely yours, Harry G. Nye

CELEBRATED SKIP TOOTH SOLID DIE
(Genuine Nye)

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS - - 4120-30 Fullerton Avenue, Chicago, Ill.

Copyright 1931 by Harry G. Nye. All rights reserved

"I'LL STOP THAT NOISE WITH A SHERWOOD"

"The tank in my bathroom is constantly whistling and gurgling. It is always dripping and leaking. Can you do anything about it?"

When a customer makes that sort of inquiry, the safe reply for you to make is, "I'll stop that noise and that leak with a Sherwood Ball Cock."

It's safe because Sherwood is guaranteed to close against any city water pressure without whistling, gurgling or leaking.

Every bathroom, old and new, deserves a Sherwood Ball Cock. And here's an interesting fact:

When you install a Sherwood Ball Cock in an old bathroom, it stands as a sample of the work you do. Its wonderful performance will often be the means of opening up big leads for complete bathroom remodelling.

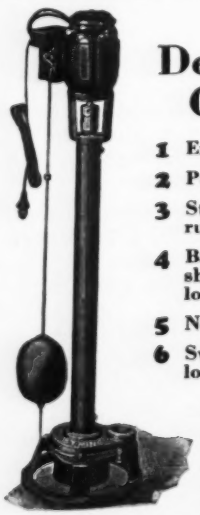
Sherwoods are furnished with any length shank desired. They are always readily available thru your jobber.

Try a Sherwood for your next job. You'll know why it is "standard" with hundreds of plumbers everywhere, when you do.

Mark it down, now, to order a Sherwood Ball Cock.

SHERWOOD BRASS WORKS
Jefferson and Mt. Elliott Aves. DETROIT, MICH.
REPRESENTATIVES
J. A. Riordan Co. (Inc.), 1698 E. 7th St., Los Angeles; 303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred E. Wilcox, Plymouth Bldg., Minneapolis

a NEW profit-maker for you!



The Deming-Mueller Cellar Drainer

1 Exceptionally High Head
2 Pump has *all bronze water end*
3 Stainless steel shaft; resists rust or corrosion
4 Ball bearing on upper end of shaft and oilless bearing on lower end
5 Non-clogging type of impeller
6 Switch protects motor against low voltage and overload.

A new folder, illustrating and describing this modern cellar drainer and quoting prices has just been printed. Write for a copy today.

Deming

THE DEMING COMPANY, Salem, Ohio
Established 1880

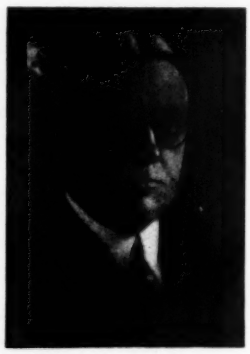
Obituary

B. T. Beardsley

B. T. Beardsley, district manager for the Sloan Valve Co., Chicago, in the Pittsburgh, Pa., territory for many years, died on March 31 at his home following an extended period of ill health. Mr. Beardsley was well known to the trade in Ohio and Pennsylvania. Before his association with the Sloan Valve Co., Mr. Beardsley represented the Wolff Co., of Chicago. In a busy lifetime in the plumbing industry he made a host of friends among his business associates. Mr. Beardsley was in his sixty-fourth year and is survived by his widow and one daughter.

John B. Brazier

John B. Brazier, vice president and general manager of the Powhatan Brass and Iron Works, Ranson, W. Va., with which he was identified for thirty-two years, died March 24 at his home in Charlestown. His connection with the brass business for many years and his genial personality and sound judgment in matters pertaining to the plumbing industry made him much sought after at conferences where business problems were discussed.



John B. Brazier

Mr. Brazier was sixty-seven years old and is survived by his wife and two sons. Approximately three hundred of his friends attended the funeral, among whom were Frank H. Simmons and John M. Chaplain, both of John Simmons Co., New York City.

A. W. Williamson

A. W. Williamson, president and founder of the Williamson Heater Co., Cincinnati, Ohio, died on March 29 at Miami Beach, Fla., where he was spending a holiday with his wife, Mrs. Bessie Coffin Williamson. Prior to founding the company in 1896, Mr. Williamson taught in the public schools of Cincinnati and in recent years was a director of the Oakley Bank. He was a member of the Masonic fraternal organization; Cincinnati Club; Queen City Club, and the Cincinnati Country Club. Mr. Williamson was in his 79th year. Besides his wife, he leaves a brother, W. C. Williamson. Funeral services were held March 31 and burial was at Spring Grove.

Charles E. Lawton

Charles E. Lawton, general auditor of Trenton Potteries Co., Trenton, N. J., died on March 30 at Gladwyn, Pa., where he had been taken several weeks previous following a general breakdown. At the age of 13 years Mr. Lawton became connected with Apaugh & McGowan Co. and worked his way up to the position of secretary-treasurer before that firm was taken over by the Trenton Potteries Co He was a Shriner, a member of the Scottish Rite and an active church worker. Mr.

How . . . $76.50 PLACED ME *Outside of* COMPETITION

ARTHUR LAHR
PLUMBING AND HEATING CONTRACTOR
OFFICE AND SHOWROOM
824 NORTH NINTH ST. PHONE 1979
LAFAYETTE, INDIANA

February 26th, 1931.

United Stoker Corp.,
Lafayette, Indiana.

Gentlemen:

I am enclosing my sixteenth order for a MASTOKER. The stokers that I have sold are giving very satisfactory service and I have no difficulty at all in installing them.

I have one MASTOKER on display in my showroom and it is the only salesman I need. Prospects just look at it operate and then order. There is certainly more profit in MASTOKER sales than in the plumbing and heating of to-day.

When I first learned of your $76.50 proposition it sounded too cheap to be good. However, I soon was convinced of my error as I certainly was a good investment for me. I have written several of my friends in the plumbing business here in Indiana to grab the MASTOKER agency before someone beats them to it.

Wishing you continued success, I remain,

A BOOSTER,

Arthur Lahr

alc

IN the unsolicited letter to the right, Arthur Lahr, past president of the Indiana Master Plumbers' Organization, tells his experience with the Mastoker.

You **can get away from your present keen competition by becoming the exclusive dealer in your community for Mastoker—the world's greatest stoker. Your initial cash investment need be no more than $76.50.**

The Mastoker ends the drudgery of hand firing and reduces fuel bills. It makes coal the clean, convenient fuel as well as the most economical. Write for details. Address Dept. 72.

MASTOKER

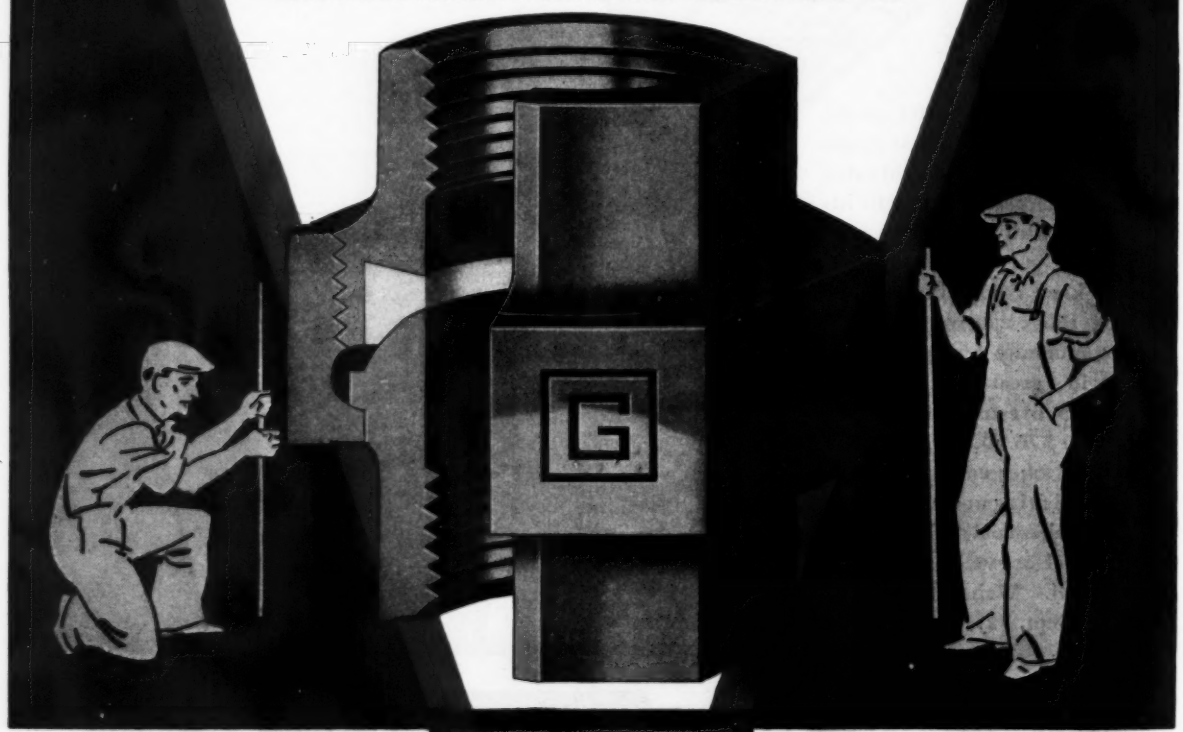
THE WORLD'S GREATEST STOKER

UNITED STOKER CORP., LaFayette, Ind.

PRECISION THREADS
that speed the job!

SQUARE "GEE" UNIONS have the happy faculty of going where they belong—in a hurry. ▲ Hemming and hawing for a start just doesn't happen with these finely engineered unions. Smoothly chamfered, they grab hold with never a moment of hesitation. ▲ And how those clean threads—just right in pitch, diameter and taper—do bring a smile to the man behind the wrench. ▲ There is extra value in Square "Gee" Unions—put there by Grabler's unique manufacturing methods and by their extreme care in inspection. ▲ You will find work going faster—costs going lower—when you make Square "Gee" Unions (and fittings, too!) standard on every job.

THE GRABLER MANUFACTURING COMPANY
6565 Broadway · Cleveland, Ohio
Warehouses: New York, Chicago, Los Angeles, San Francisco
YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"



SQUARE Pipe
MALLEABLE, CAST IRON

"GEE" Fittings
DRAINAGE, BRASS

Lawton was sixty-one years of age and is survived by his wife and two sons. Funeral services were held April 1 from his home in Trenton.

◆

New England Heating Trades Golfers Elect Officers

The New England Heating Trades Golf Association held its annual meeting at the Engineers Club, Boston, Mass., on March 18. President Coll Flint opened the business meeting with the reading of the reports of the secretary, treasurer, and auditing committee, all of which were accepted.

An election of officers was held and the following officers were chosen for the coming year: President, George Priggen; vice president, J. F. Tuttle, of Warren Webster & Co.; secretary-treasurer, John G. Ross, of Reading Iron Co.; captain, A. T. Papineau, DOMESTIC ENGINEERING; and handicapper, F. Scott, Walworth Co.

Past President E. T. Keefe presented Mr. Flint with a beautiful wrist watch as a token of the association's appreciation of his leadership. A program of music and entertainment followed the meeting. The members enjoyed a four-reel motion picture of the last championship match at Winchester Country Club, which was won by Horton Smith and Leo Deigel.

Top row: George E. Gibson, Sr., and George E. Gibson, Jr., both of George E. Gibson Plumbing Co.; Dudley Warth, C. F. Church Mfg. Co. Middle row: J. M. Katz, vice president of Emanuel M. Katz, Inc.; Charles J. Bray, Mueller Co. Bottom row: Carl Hensel, Dimock & Fink Co.; Henry Garrity, Trenton Potteries Co. Photos taken at the meet of the Plumbing Industry's Golf Association of New York City

NOW IT'S TWICE AS STRONG -BUT NO HEAVIER!

IT'S always been a husky wrench. You couldn't break or warp the housing. The adjusting nut *always* turned easily. The powerful I-beam handle took the yanks of the most energetic plumber or steamfitter — but RIDGID designers have gone ahead anyway and practically doubled its strength, without any mechanical change or increase in weight!

Add That To These Features

AND it still has these great RIDGID features: Lock-proof non-slip jaws; replaceable heel jaw; full-floating hook jaw with pipe scale; easy turning adjusting nut in wide open housing; unusually comfortable handle with hang-up hole; end pattern for coils; and the famous guaranteed non-breakable housing, more unbreakable than ever!

There are RIDGID Pipe Wrenches Cutters, Vises & Threaders

Ask Your Jobber.

THE RIDGE TOOL COMPANY, ELYRIA, OHIO

RIDGID PIPE TOOLS

TRADE-MARKED

FOR YOUR PROTECTION

A POLICEMAN is identified for service. So is Chase Alpha Brass Pipe. Every twelve inches you will find the unforgettable Chase-mark.

That means we're responsible. *YOU* are responsible if unmarked pipe goes wrong. ASK your jobber for pipe marked "Chase."

CHASE

The mark that identifies good brass and copper products

CHASE *Alpha* BRASS PIPE

CHASE BRASS & COPPER CO.—Incorporated—WATERBURY, CONN.

San Francisco Trade Golfers Play Stanford Course

One of the most successful tournaments, from the standpoints of both sport and trade contacts, ever held by the Plumbing and Heating Club of San Francisco took place March 26 at Palo Alto, on the Stanford Golf Club course, situated just beyond the campus of the well known California university. Following the tournament was an equally well attended banquet at the Cardinal hotel, where a number of the non-golfing club members joined the others.

In spite of beautiful fairways and ideal weather conditions, many of the players ran into trouble. Stanford is a 71-par course, enjoys a high professional rating and is heavily trapped. The twelfth and fourteenth are particularly troublesome, and will go far toward making or breaking a man's score. Notwithstanding these various hazards, R. B. Lees achieved A-class honors by shooting a 68 net; while A. G. Atwood captured the B-class trophy with a 75, Charles Higgins the C-class with 79, and Clarence Drucker the D-class with an 87. By turning in the lowest net score of any player regardless of classes, Mr. Lees was awarded possession of the C. F. Church Mfg. Company's trophy until the next regular tournament.

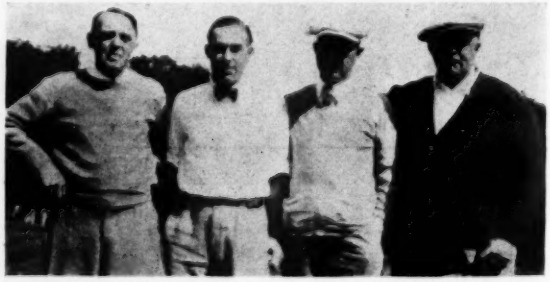
The tie between Charles Higgins and E. J. Kraus, as a result of the January tourney, was played off at this meet and won by Mr. Higgins.

The recorded scores were:

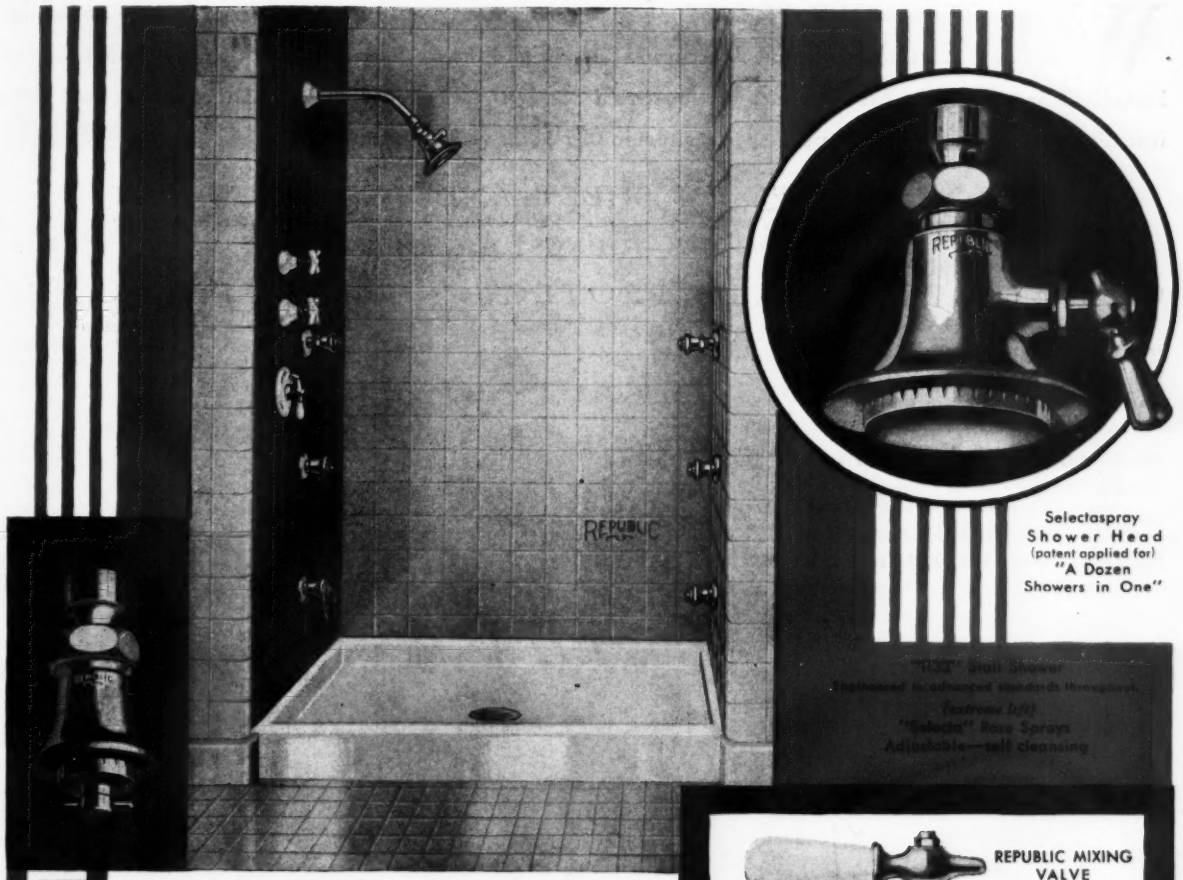
	G.	H.	N.		G.	H.	N.
Pearce	104	24	80	Mosher	121	32	89
Finch	106	22	84	O'Hair	101	14	87
Lawson	98	22	76	Drucker	120	33	87
Gomph	92	*	92	Oelschlagel	111	22	89
Callahan	105	*	105	Rowe	103	17	86
Heymans	115	26	89	Kraus	125	26	99
Higgins	105	26	79	Young	94	9	85
Anderson	93	15	78	Ceaser	115	26	89
Farry	100	20	80	Cutherell	103	*	103
Greenberg, S.	113	23	90	Greenberg, M.	103	21	82
Allmon	99	18	81	Strand	109	*	109
Hons	130	*	130	McLeod	104	20	84
Atwood	99	24	75	Lees	83	15	68
Rainwater	102	21	81	Forsythe	106	26	80
Blackburn	112	*	112	Sheehan	96	*	96
Seitz	90	18	72	Doerr	106	24	82

* Guest.

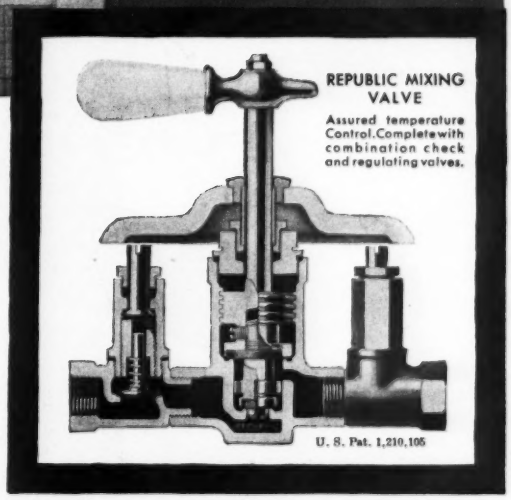
Among the speakers at the banquet following the golf tournament was H. P. Hansen, merchant plumber of Palo Alto, who spoke briefly on the advantages enjoyed by members of the Plumbing and Heating Club, chiefly those which give members and guests an opportunity of meeting their competitors somewhere other than in a general contractor's office. P. E. Brand of Redwood City, president of the newly formed Peninsula Merchant



Left to right: H. W. Finch, Fred Oelschlagel, W. R. Pearce and Frank Mosher



Selectaspray
Shower Head
(patent applied for)
"A Dozen
Showers in One"



Features that Win Orders from "Fussy" Stall Shower Prospects

Here is an expertly designed and engineered stall shower: one with new features that appeal to fussy prospects—that protect you against endless fixing and adjusting after the installation is made.

They are cranks on showers—these folks who gladly pay the added price for stall shower luxury. They demand the last word in perfect mechanical operation; in definite temperature control; in equalized pressure at all outlets.

Install a Republic "1132" and you meet their every demand—take no chance on the endless trouble that comes when one outlet robs another; when the mixing valve sticks or permits by-passing; when shower or spray heads clog and dribble ineffective streams.

Get all the facts on Republic's sweeping improvement in stall showers from your Republic Jobber—or write direct.

THE REPUBLIC BRASS COMPANY
1623 EAST 45th STREET · · CLEVELAND, OHIO

REPUBLIC STALL SHOWER FEATURES

1. **Selectaspray Shower Head:** A dozen showers in one. Instantly adjustable to any desired spray. Self-cleansing. Concealed flow-regulator.
2. **Selecta Rose Spray Heads:** Adjustable spray outlets, equalizing flow at all sprays. Concealed volume regulator. Self-cleansing.
3. **Republic Mixing Valve:** Assured temperature control. Absolutely no by-passing. Combination check and regulating valves permit equalization of pressure.

REPUBLIC
Brass Goods

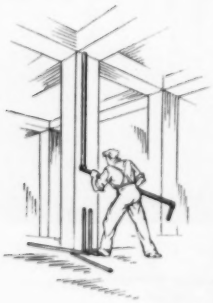
WHAT STRONGER PROOF of pipe-permanence and ease of installation could be desired than that offered by thousands of plumbing contractors . . . . in thousands of installations? From coast to coast Youngstown steel pipe is constantly demonstrating that it is unexcelled in performance and has no superior in ease of installation.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"
General Offices—YOUNGSTOWN, OHIO

GALVANIZED SHEETS PROTECT · SAVE WITH STEEL

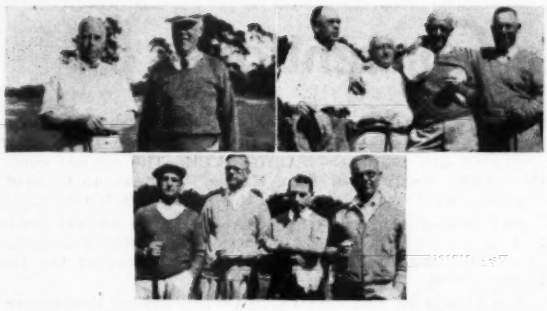
Hahnemann Medical College & Hospital, Philadelphia, Pa., in which Youngstown Copperoid steel pipe is used in the plumbing system.

Architect—**LOUIS E. JALLADE, New York**
Mechanical Engineer—**H. HALL MARSHALL, New York**
General Contractors—**IRWIN & LEIGHTON**
Plumbing Contractor—**S. FAITH & CO.**



District Sales Offices:

ATLANTA · · · · Healey Building
BOSTON · · · Chamber of Commerce Bldg.
BUFFALO · · · · Liberty Bank Building
CHICAGO · · · Conway Building
CINCINNATI · Union Trust Building
CLEVELAND · · Terminal Tower Building
DALLAS · · · · Magnolia Building
DENVER · Continental Oil Building
DETROIT · Fisher Bldg.
KANSAS CITY, MO. Commerce Building
LOS ANGELES · · 3000 Santa Fe Avenue
MEMPHIS · 42 Keel Ave.
MINNEAPOLIS · · · · · Andrus Building
NEW ORLEANS · · · · Hibernia Building
NEW YORK · · · · · · · 30 Church St. Hudson Terminal Building
PHILADELPHIA · · · · · Franklin Trust Bldg.
PITTSBURGH · Oliver Building
SAN FRANCISCO · · · 55 New Montgomery Street
SEATTLE · Central Bldg.
ST. LOUIS · Louderman Building
YOUNGSTOWN · · · · Stambaugh Building
LONDON REPRESENTATIVE: The Youngstown Steel Products Co., Dashwood House, Old Broad St., London, E. C. Eng.



Top row, left to right: W. Allan Taylor, Thomas F. Leary, Clarence Drucker, F. W. Gomph, H. Lawson and M. S. Greenberg. Bottom row: J. V. Young, Charles Higgins, Emile Heymans and E. J. Kraus

Plumbers' Association, outlined the scope and operating plan of his organization.

Of interest to everyone present was the announcement by President Young of the first meeting of the Federation of Merchant Plumbers of Northern California, set for the afternoon and evening of April 25, at the Fairmont hotel, San Francisco, when upward of three hundred members of the industry, and their wives, are expected. "A program of vital interest to everyone concerned in the plumbing and heating field has been scheduled, and social features for the ladies have been planned," said Mr. Young. "At 3:00 p. m. the delegates from the various associations will meet, followed by a meeting of the board of directors at 4:00. Also from 4:00 to 5:00 the secretaries and presidents of the various locals will hold their conference. At 6:30 the banquet will take place, at which everyone, both members and non-members, their families and friends will be in attendance. At the banquet and the open meeting to be held immediately afterward, all members of the industry will be liberally represented. At 8:00 o'clock the ladies will be entertained with cards, while the men will listen to talks and discussions on trade topics of the most vital interest. From ten until midnight there will be dancing in the Fairmont ballroom."

The speaker pointed out that the federation now operating in southern California, after which the northern California body is patterned, has proved of immeasurable benefit to the whole industry in that section. "And I see no reason why the same results should not attend our efforts in this region."

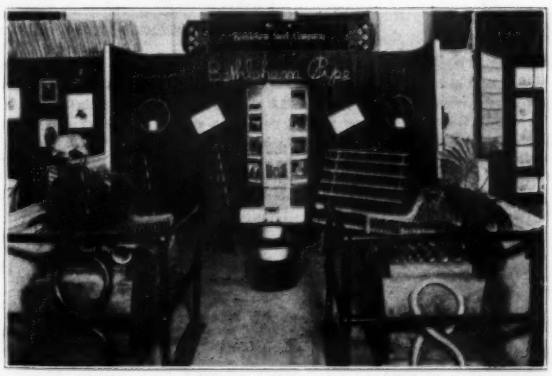
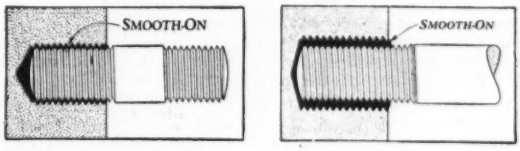


Exhibit of Bethlehem Steel Co., Bethlehem, Pa., at the Boston convention, National Association of Master Plumbers

STRIPPED THREADS —*hard to avoid, but* EASY TO REMEDY



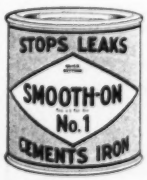
STRIPPED THREADS OVERSIZE HOLE

REGARDLESS of whether the stripping is caused by worn-out, undercut or poorly tapered threads, soft metal, undue forcing or corrosion, simple application of Smooth-On No. 1 will make a solid joint—on any metal, and easily capable of holding steam, water, gas, oil, ammonia, etc., at any working temperature and pressure.

Threads flattened, battered or corroded almost beyond recognition can be made tight with Smooth-On No. 1, provided only that the contact surfaces are cleaned, that a reasonable quantity of Smooth-On can be worked between them and that the pipe or rod end can be shoved or twisted well into the tap. Expansion of the Smooth-On in hardening makes the adjoining surfaces virtually solid metal.

Making such a joint with Smooth-On No. 1 is quicker, easier and much less expensive than reboring, retapping and using larger threads, and is thoroughly practical in places where size increase and complete renewal are not.

Try this Smooth-On method of restoring extreme tightness where renewal material is not at hand, or would cost too much, and you will be agreeably surprised at the results. The Smooth-On Handbook gives all necessary directions.



Get this book free by mailing the coupon, and buy Smooth-On No. 1 in 1 or 5-lb. can or 25 or 100-lb. pail from your supply house or if necessary direct from us.

SMOOTH-ON MFG. CO., Dept. 12, 570 Communipaw Ave., Jersey City, N. J.

Please send copy of the SMOOTH-ON HANDBOOK 21st Edition.

Name.....

Address.....

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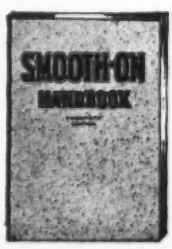
4-31 .....



Do it with **SMOOTH-ON**

Dates of Coming Conventions

April 20, 21 and 22, 1931—TEXAS—The annual convention of The Associated Master Plumbers of Texas, to be held at Houston at the Rice hotel.

April 24 and 25, 1931—LOUISIANA-MISSISSIPPI—The annual convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, to be held at Jackson, Miss., with headquarters at the Robert E. Lee Hotel.

April 28 and 29, 1931—MINNESOTA—The annual convention of the Minnesota Retail Plumbers' Association, to be held at Minneapolis, with headquarters at the Radisson hotel.

May 2 and 3, 1931—ARIZONA—The annual convention of the Arizona State Association of Master Plumbers, to be held at Phoenix.

May 4 and 5, 1931—FLORIDA—The annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at West Palm Beach.

May 4 and 5, 1931—MISSOURI—The 47th annual convention of the Missouri State Association of Master Plumbers, to be held in Jefferson City.

May 6, 7, 8 and 9, 1931—H. & P. C. N. A.—The annual convention of the Heating and Piping Contractors National Association, to be held at Louisville, Ky., with headquarters at the Kentucky hotel.

May 8 and 9, 1931—MONTANA—The 34th annual convention of the Montana Master Plumbers' Association, to be held at Great Falls.

May 11 and 12, 1931—TENNESSEE—The annual convention of the Associated Master Plumbers of Tennessee, to be held at Nashville.

May 11, 12 and 13, 1931—N. P. S. A.—The convention of the National Pipe & Supplies Association to be held at Cleveland, Ohio, with headquarters at the Hotel Hollenden.

May 12 and 13, 1931—CONNECTICUT—The annual convention of the Connecticut State Association of Master Plumbers, to be held at Dorfschts Hall, New Haven. Headquarters will be at the Taft Hotel.

May 15 and 16, 1931—WASHINGTON—The annual convention of the Washington State Master Plumbers, to be held at Spokane, with headquarters at the Davenport hotel.

May 18 and 19, 1931—GEORGIA—The 39th annual convention of the Georgia State Association of Master Plumbers, to be held at Brunswick, Ga., with headquarters at the Oglethorpe Hotel.

May 18 and 19, 1931—ALABAMA—The annual convention of the Alabama Master Plumbers' Association, to be held at Birmingham, with headquarters at the Hotel Bankhead.

May 18, 19 and 20, 1931—KENTUCKY—The annual convention of the Kentucky State Association of Master Plumbers, to be held at Ashland, with headquarters at the Ventura hotel.

May 19 and 20, 1931—PENNSYLVANIA—The annual convention of the Pennsylvania Master Plumbers Association, to be held at Allentown, with headquarters at the Americus hotel.

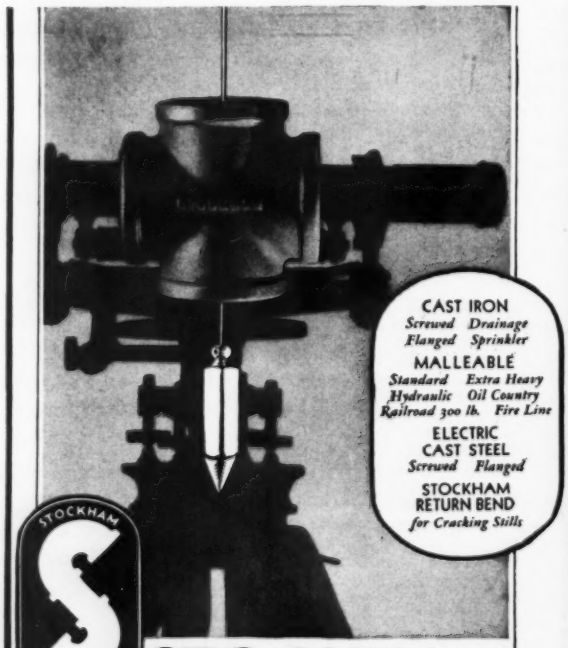
May 18, 19, 20, 21 and 22, 1931—CALIFORNIA—The annual convention of the State Association of Master Plumbers to be held at San Diego, Calif., with headquarters at the U. S. Grant hotel.

May 22 and 23, 1931—OREGON—The annual convention of the Oregon State Association of Master Plumbers, to be held at Bend. Convention headquarters will be at the Elks Temple, and hotel accommodations at Pilot Butte Inn.

May 26 and 27, 1931—NEW JERSEY—The annual convention of the New Jersey Association of Master Plumbers, to be held at Trenton, with headquarters at the Hotel Hildebrecht.

June 2, 3, 4 and 5, 1931—N. D. H. A.—The annual convention of the National District Heating Association to be held at Boston, Mass., with headquarters at the Hotel Statler.

June 4 and 5, 1931—NORTH CAROLINA—The annual con-



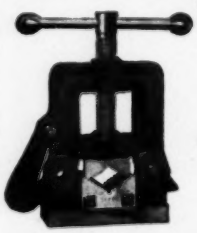
STOCKHAM FITTINGS

—for straight lines and strength

ARMSTRONG BROS.

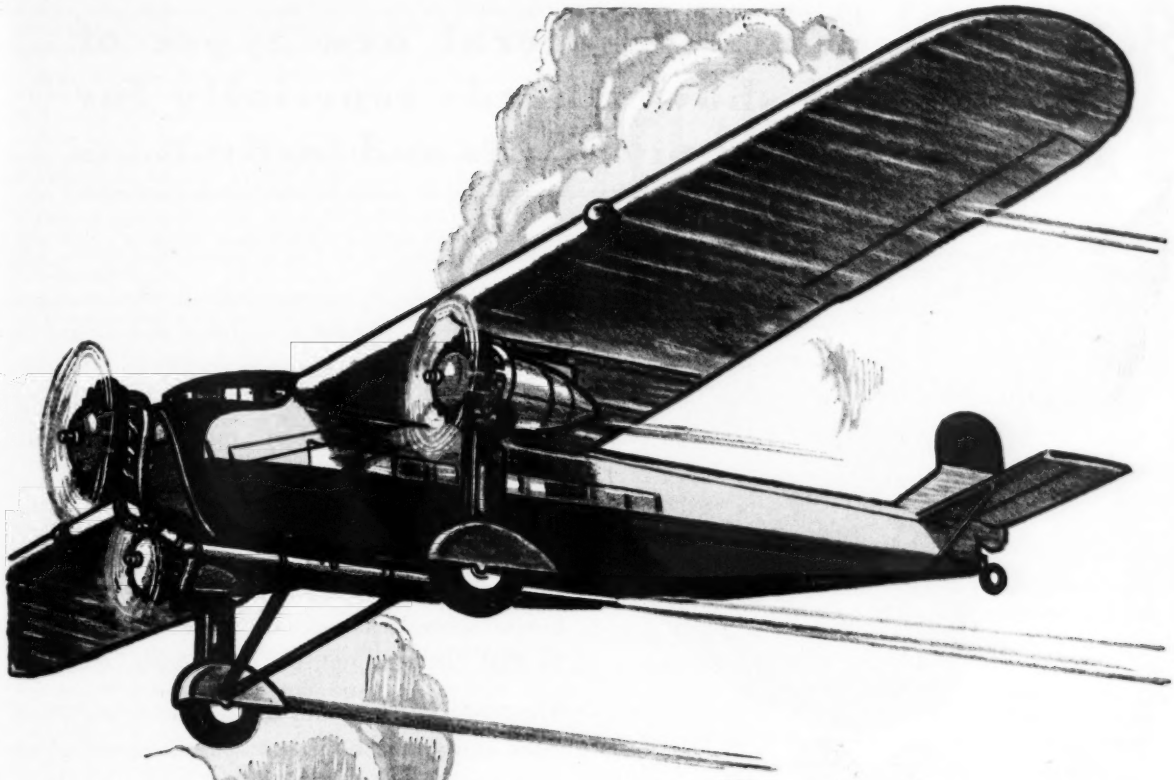
Quick in action, long in service

ARMSTRONG BROS. Standard Pipe Vises are quick in action, hold firmly and give long, satisfactory service. Hooks do not break for they are drop forged steel; frames and bases are of Certified Malleable Iron (the iron that is from 40 to 200 per cent stronger); jaws are of Tool Steel, carefully milled, hardened, tempered and tested. These vises are of convenient weight with great strength. In each detail, they are fine tools, finely made and finished, are from the line of *Better* Pipe Tools—the tools distinguished by the Arm-and-Hammer Trade Mark.



Write for Catalog P-10 which shows and describes all ARMSTRONG BROS. Tools.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Avenue
CHICAGO, U. S. A.



IT'S a far call from the first airplane flight of 52 seconds by the Wright Brothers back in 1903 to the modern air liners of today, yet that is only part of the span of years that SPANG has served industry . . . Since 1828

Born with the 19th Century . . . leading the 20th

FOUNDED in an age when quality and excellence of product were the guiding ideals of master craftsmen . . . in an age when men were required to spend many years as apprentices to their craft . . . then it was that SPANG began the manufacture of a grade of pipe that is today recognized as the standard of pipe quality the world over. The great SPANG Pipe Mills of today inherit this old-time quality zeal . . . every length of "SPANG" pipe you use reflects this "SPANG" quality tradition . . . every "SPANG" pipe craftsman takes pride in its production . . . Specify "SPANG", the name that's a guarantee to pipe satisfaction.

SPANG, CHALFANT & CO., INC.
GENERAL OFFICES, CLARK BUILDING
PITTSBURGH, PA.

Sales Offices: New York, Boston, Pittsburgh, Chicago, St. Louis, Tulsa, Los Angeles, Dallas, Birmingham
Welded Mills: Etna, Penna., Sharpsburg, Penna. *Seamless Mills:* Ambridge, Penna.

SPANG WELDED STEEL PIPE

We have designed several new types of showers and shower heads especially for schools, colleges, universities and institutions

K-3395 Speakman Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923)

ALL FROM THE SAME HEAD

Flood Shower

Normal Shower

Needle Shower

K-3396 — Speakman Anystream Self-Cleaning Shower Head with ½-inch I.P. female inlet and lock-shield arranged to operate by a key.

K-3397 — Speakman Anystream Self-Cleaning Shower Head with ½-inch I. P. female inlet and arranged to be operated with a screwdriver.

THESE new Speakman School Showers and Shower Heads have features not found in any other type of equipment. All the showers have the new Speakman Anystream Self-Cleaning Shower Head (patented); operated by either lever handle, key or screwdriver.

The new Speakman School Showers are practically abuse-proof—all pipes fit nearly flat against the wall—not enough space to get the fingers behind them. Heads are equipped with set screws so that they cannot be maliciously removed.

These new showers and shower heads are illustrated and described in a 16-page bulletin which we have just issued; complete with roughing-in for the new Speakman School Showers. Copies will be mailed promptly to plumbers and wholesale supply houses requesting them. Also if you know of any school boards or architects interested in building or remodeling schools, see that copies are placed in their hands at once. We'll mail them out if you wish.

SPEAKMAN COMPANY

Wilmington, Delaware

This book contains authoritative information on various types of showers and shower heads for regular and special installations.

SPEAKMAN SHOWERS & FIXTURES

vention of the North Carolina Association of Plumbing and Heating Contractors, to be held at Wrightsville Beach, with headquarters at the Oceanic hotel.

June 5, 1931—VIRGINIA—The annual convention of the Virginia Associated Plumbing and Heating Contractors, Inc., to be held at Richmond.

June 23, 24 and 25, 1931—N. A. M. P.—The forty-ninth annual convention of the National Association of Master Plumbers, to be held at the Auditorium, Milwaukee, Wis., with headquarters at the Hotel Schroeder.

June 23 and 25, 1931—N. A. M. P. AUXILIARY—The annual convention of the Women's Auxiliary to the National Association of Master Plumbers, to be held in the Hotel Schroeder, Milwaukee, Wis.

September 8-11, 1931—A. S. S. E.—The annual convention of the American Society of Sanitary Engineering to be held at Richmond, Va., with headquarters at the Jefferson hotel.

COMING TRADE EVENTS

April 20, 1931—Dinner to be given by the Ladies Auxiliary to the Philadelphia Master Plumbers Association, to be held in Philadelphia, Pa.

May 21 and 22, 1931—The second Midwest Bituminous Coal Conference, to be held at the University of Illinois, Urbana.

June 6, 1931—The annual outing of the Brooklyn and Long Island Plumbing Supply Credit Association, to be held at Narragansett Inn, Lindenhurst, Long Island, N. Y.

June 9 and 10, 1931—The Second Plumbing and Heating Conference of the Maine State Master Plumbers' Association, to be held at the University of Maine, at Orono, under the auspices of the department of civil engineering.

June 22, 23, 24 and 25, 1931—Exposition of plumbing, heating and allied products, in connection with the forty-ninth annual convention of the National Association of Master Plumbers, in the arena of the Auditorium, Milwaukee, Wis.

November 16-21, 1931—The Third International Conference on Bituminous Coal, to be held at Carnegie Institute of Technology, Pittsburgh, Pa.

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Philadelphia Chapter Holds March Meeting

The regular meeting of the Philadelphia Chapter of the A. S. H. & V. E. was held at the Engineers' Club, Philadelphia, on March 12. The meeting was called to order by Vice President L. C. Davidson in the absence of President E. N. Sanbern. Mr. Davidson called upon Edgar Oters, chairman of the membership committee of the Engineers' Club, and also Joseph Doerr, vice chairman of the committee. Each spoke in behalf of the Engineers' Club and requested that the members of the society take advantage of the many facilities offered by the club.

R. V. Frost gave an interesting talk, illustrated by lantern slides, on "The Combustibility of Coal." At the conclusion of Mr. Frost's talk, M. F. Blankin, chairman of the meetings committee, presented M. C. Gellett, who conducted a general discussion with blackboard illustrations of several problems on low pressure steam and hot water heating. Several members presented problems which were discussed generally.

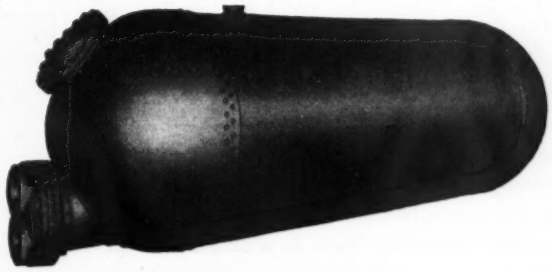
Mr. Blankin advised that the subject of the next meeting would be, "Methods of Heating and Ventilating in Ship Construction."

◆

Will Compile Rating Schedule for Steel Boilers

The National Bureau of Standards is to present for the consideration of the heating industry a simplified schedule on capacity ratings for low pressure, steel heating boilers. This action is in response to a request made by the Steel Heating Boiler Institute following the study of a recent survey on capacity ratings.

BUILDING FOR THE FUTURE



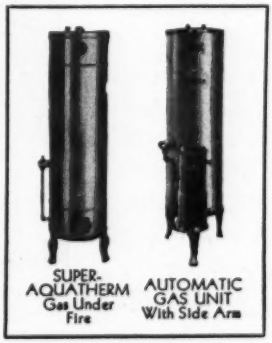
Customers today are quick to recognize the economy of superiority and are increasingly careful to learn the mechanical construction of their hot water boilers and other service commodities.

Definitely gone are the days when hot water equipment users were uninformed and bought carelessly on the basis of price only.

The Dahlquist complete line of copper hot water boilers has always been sold on the basis of efficient design and the highest quality of materials and construction. Hence this new attitude on the part of the purchaser is welcome.

Dahlquist copper hot water boilers range from immense units for industrial usage to the smallest range boiler for the cottage.

Ask for full information regarding the Dahlquist complete line of copper boilers for industry and home.



Dahlquist fundamental improvements for household units are recognized throughout the world. The Dahlquist Aquatherm and Dahlquist Turbo-Aquatherm have greatly increased the efficiency of hot water service for the home. Despite all these advantages, Dahlquist's enormous production results in the lowest prices. Write for full information.

Dahlquist Mfg. Co.

30 West 3rd Street So. Boston, Mass.

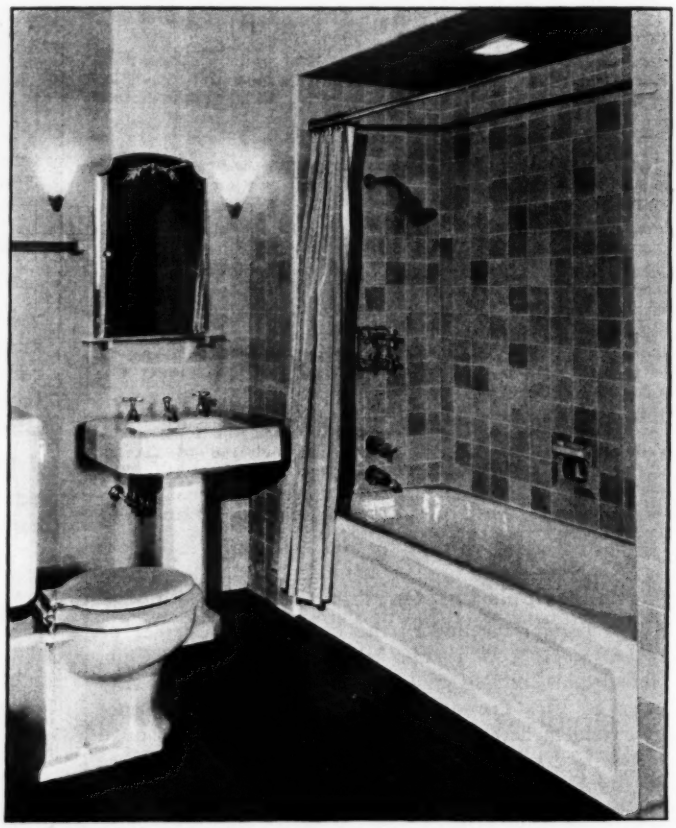
PRACTICAL POINTS FOR PLUMBERS ABOUT THE NEW MATCHED FIXTURES THAT GO TOGETHER ON PURPOSE...

LITTLE things still count. You've drummed it into your customers that *details* build up the final impression of charm, luxury, correctness. Especially in the bathroom. And decorative unity in the bathroom results directly from the way that all details of design and construction in these new Kohler matched sets contribute to a single feeling.

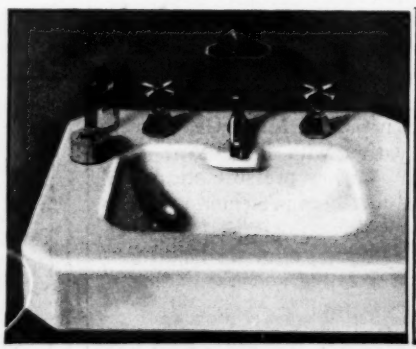
To see how this works out, compare points on the Metropolitan bath and lavatory. Edges are abrupt, square. Corners, usually rounded, turn at beveled angles. The slab space, broad and level, gives convenient room for brushes, shaving cream, and such things. The lavatory has the concealed overflow and anti-splash rim—features heretofore obtainable only on more expensive vitreous china fixtures.

Down to the last detail—tub, lavatory and closet are made for each other, and for practicability. Individual beauty is here combined in matched ensembles. . . . Yet Kohler matched fixtures of the Metropolitan Set are popularly priced, in spite of their special features. The Mayfair Set is more expensive. Selections can be made to fit taste, purse and purpose. The closet, for example, comes in syphon jet, reverse trap, and washdown models. Either Octachrome or Dynamic brass fittings are available, as your customer prefers.

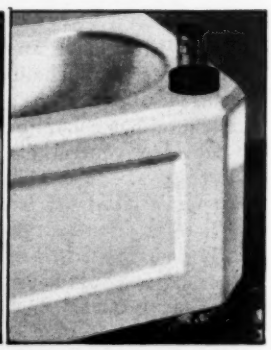
Write for more information about this new departure in plumbing fixtures. And while the mail's on the way, arrange to meet customers at the nearest Kohler showroom. Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point,* Sheboygan, Wis.—*Branches in principal cities.* Look for the Kohler trade-mark on each fixture and fitting.



THE METROPOLITAN SET



The enameled lavatory—*level slab space—concealed overflow—anti-splash rim*



The bath—*edges square—corners beveled—flat rim*

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS

THE TRADE

News of Plumbing and Heating Contractors

North Carolina Sets Dates for Convention

The North Carolina Association of Plumbing and Heating Contractors has selected June 4 and 5 as the dates for its annual convention. The meeting will be held at Wrightsville Beach, with headquarters at the Ocenaic hotel. H. S. Ritchie of Albemarle is president of the Carolina state association. The other officers are J. A. Haley of Charlotte, first vice president; R. R. Benson of Chapel Hill, second vice president; and E. B. Grady of Concord, secretary and treasurer.

◆

Minnesota Sets Dates for Convention

The Minnesota Retail Plumbers' Association will hold its 37th annual convention at Minneapolis April 28 and 29. Headquarters for the convention will be at the Radisson hotel. H. W. Strader of Minneapolis is president of the Minnesota state association; Anthony A. Schmidt of St. Paul, vice president; W. F. Chapman of Minneapolis, secretary, and Harry C. Ridler, also of Minneapolis, treasurer. The following committees have been appointed for the convention:

Auditing committee—M. T. Fox, Minneapolis; Al. Ohman, Pine City, and H. C. Hanson, Virginia.

Credentials committee—J. O'Donnel, St. Paul; H. W. Benson, St. Cloud, and A. Lacher, Minneapolis.

Grievance committee—Fred A. Beier, St. Paul; J. G. Mehl, Rochester, and H. C. Ridler, Minneapolis.

Memorial committee—Martin Wold, Duluth; Walter G. Krost, Mankato, and Ernest Maass, Jr., Rochester.

Reception committee—Otto Nelson, Oscar Johnson, Al. Wintheiser, Robert Arthurs and Math. Elsen, all of Minneapolis; E. J. Bossard and A. Schmidt, both of St. Paul.

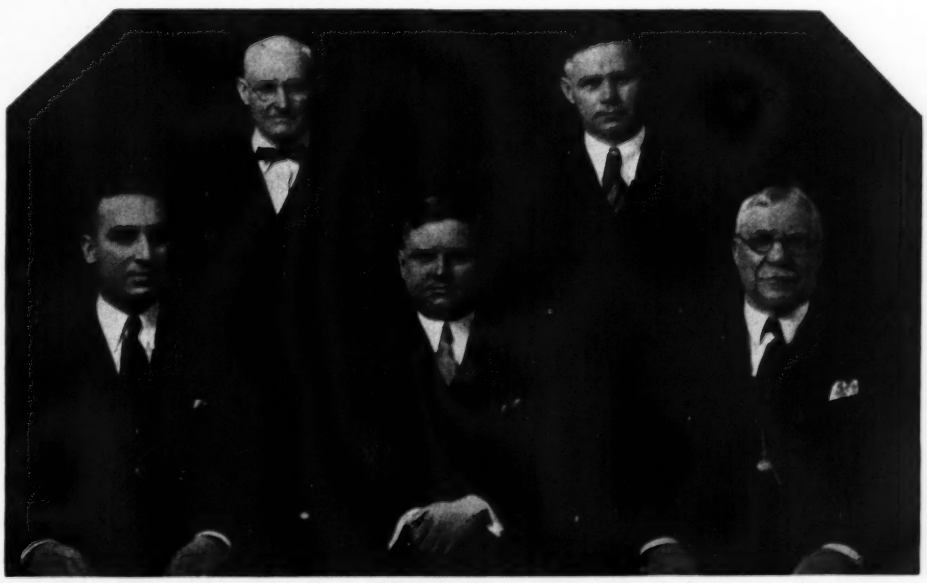
Resolutions committee—Axel Peterson, St. Paul; Ben. Benson, Wilmar, and William W. Hughes, Minneapolis.

Rules committee—T. Shetka, St. Paul; William Mickelson, Montevideo, and Charles Olson, Winona.

◆

New Jersey Plans Big Convention

Plans for the annual convention of the New Jersey State Association of Master Plumbers, to be held May 26 and 27 at Hotel Hildebrecht, Trenton, are nearly ready. The convention committee is headed by Walter A. Grub of Newark, former state president. Mr. Grub is being assisted by the entire executive board, including Alexander F. Berg of Orange, president; Charles S. Loveman



This is the local committee in charge of arrangements for the 42nd annual convention of the Heating and Piping Contractors National Association, which will be held in Louisville, Ky., May 6-9. Back row, left to right: W. C. Gibson, secretary, and C. J. Redmon. Front row: M. J. Chagnard, chairman, O. C. Krause, and F. A. Clegg, president of Louisville association

of Neptune, first vice president; James O. Lewis of Newark, second vice president; George L. Bird of Elizabeth, third vice president; Edmund P. Ingram of Jersey City, fourth vice president; George H. Werner of Orange, treasurer; Joseph Berg of Orange, secretary, and the following directors: George McVoy of Plainfield, Edward J. Geyer of Bergenfield and James L. Bennett of Trenton.

◆

Plans Under Way for Maine State Plumbing and Heating Conference

The Second Plumbing and Heating Conference of the Maine State Master Plumbers' Association is to be held at the University of Maine, Orono, Maine, June 9 and 10. The conference will be held under the auspices of the department of civil engineering. Professor E. H. Sprague, college of technology, will be in direct charge.

John T. Kerrigan of Lewiston, president of the Maine state association, has appointed the following committee to arrange for the conference: George T. Noyes, Presque Isle, chairman; C. B. Downing, Bangor, and Leon Blaisdell, Gardiner.

◆

Peninsula M. P. A. Formed in Northern California

Combining forces for a greater concerted effort along certain lines affecting the welfare of each community concerned, at the same time maintaining their local organizations intact, association members from San Mateo to San Jose, Calif., have formed the Peninsula Merchant Plumbers' Association, with a paid manager, Ed. Hokom, active in the field.

Officers in the newly formed body are: P. E. Brand of Redwood City, president; Charles Merritt of San Jose, vice president; Ed. Allen of Burlingame, second vice president; J. F. Lindstrom of Burlingame, secretary; H. P. Hansen of Palo Alto, treasurer. In addition to the officers the board of directors consists of William Craig of San Mateo, Fred Perryman of Los Gatos, J. Pracesco of Menlo Park and J. Peabody of San Jose.

◆

Wisconsin Masters Back Two Proposed Laws

Wisconsin master plumbers are sponsoring the Groves bill, just introduced into the 1931 session of the Wisconsin legislature and referred to the committee on public welfare. The bill would provide that the state have its licensing law extended to all cities having waterworks and sewerage, and it would also change the present apprenticeship period from three to five years "in order that the apprentice may qualify at the end of his apprenticeship as a skilled mechanic in the art of installing plumbing work."

Under the present law, plumbers may do work in cities of 3,000 or less population without a license, and established master plumbers in Wisconsin are hoping the law may be changed under the bill to provide that plumbers must be licensed in any city having waterworks and sewerage.

Under the section of the new law extending the apprenticeship term it is provided that "the board may prescribe as to the character of the plumbing work that the apprentice may do during the fourth and fifth year.

Past National President Thomas F. Nolan Dies

Thomas F. Nolan, nationally prominent master plumber who served as president of the National Association of Master Plumbers from June, 1927, to June, 1928, and a former chief executive of the New York State Master Plumbers' Association, died on April 9 at his home, 698 Madison avenue, Albany, N. Y., following an illness of four weeks.

Mr. Nolan was elected vice-president of the National Association of Master Plumbers at the organization's 44th annual convention at Louisville, Ky., in June, 1926.

Thomas F. Nolan

His elevation to the presidency occurred the following year at the Minneapolis, Minn., convention and he presided as president at the 46th annual convention, which was held at Memphis, Tenn., in June, 1928.

For a number of years he served as chairman of the legislative committee of the New York state association, in which position he studied carefully all bills coming before the state law-making body for any proposed legislation pertaining to master plumbers. His faithful service in this capacity gained for him the title of "watch-dog for the master plumber."

In addition to the office of state president, which Mr. Nolan held for two terms, he was president of his local association for four years. Mr. Nolan was born in Albany, and had been a master plumber for the past three decades. Prominent also in civic affairs of his city, he served as alderman in the fourth ward from 1902 to 1904. His brother, James J. Nolan, is serving as Judge of the Albany City Court.

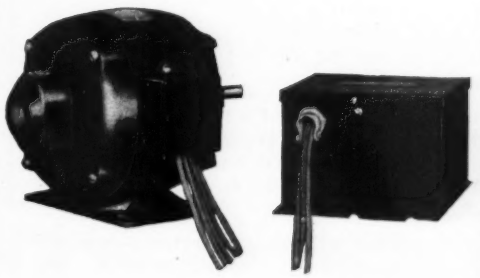
Besides being a director of the Safety Building and Loan Association of Albany, Mr. Nolan served as trustee of St. Agnes' Cemetery Association and was a Past Exalted Ruler of the Albany Lodge of Elks, an organization to which he belonged for many years, being at the time of his death a trustee. He was affiliated with the Albany Council, Knights of Columbus. Mr. Nolan's devotion to the work of the National association, especially while president, undoubtedly contributed to a gen-

G-E Capacitor-Motor

TYPE KC

an achievement of interest to manufacturers and users of automatic stokers

G-E totally enclosed motor with capacitor mounted on motor



G-E totally enclosed motor with separate capacitor

OUTSTANDING FEATURES

1. Simple construction, with no commutators or brushes, practically eliminates servicing.
2. Remarkable torque characteristics and quiet operation provide outstanding performance.
3. High efficiency results in lower operating costs.
4. Reliable operation for long periods.

SIMPLE in construction, the G-E capacitor-motor has no commutator, no collectors or brushes. Because of the simple, squirrel-cage construction of this motor, its operation is exceptionally quiet. It is the outstanding motor drive for the home automatic stoker.

Back of this motor are all the facilities of General Electric. It is the product of nearly thirty years of successful fractional-horsepower motor design and manufacture — a proved, dependable product. Why not ask the nearest G-E office to tell you more about these remarkable motors? They are worth considering.

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

210-122

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

THE Clarage line is complete We can furnish wheels in any desired size and in varying widths as shown above, or complete assemblies in any size as shown at left. If you are interested in a dependable source of supply, consult with Clarage engineers.

The FAN
— a Very Important Part of Your Unit Stoker Installation

WHETHER it's a power boiler installation or a domestic heating job, it pays to select the unit stoker fan with care.

This fan must deliver exactly the right volume of air at the right pressure, if you are to effect maximum fuel economy; and it must be a strong, rigid, perfectly balanced unit, if you are to provide trouble-free operation year after year.

Back of Clarage Fans is almost a quarter century of specialized experience in the combustion field. We have a thorough knowledge of unit stoker requirements, and we have the equipment to meet those requirements.

Clarage Unit Stoker Fans perform as specified—no guessing. They are built by modern and improved methods which combine light weight with the utmost in strength and rigidity. And last, but of prime importance, they are perfectly balanced both statically and dynamically on Tinius Olsen Machines, eliminating vibration and excessive wear, and producing quiet, smooth-running units of extremely long life.

Write for illustrated Bulletin 541-A which gives complete information and performance data. **Clarage Fan Company, Kalamazoo, Michigan. Also manufacturers of Ventilating Fans, Air Conditioning Equipment and Applied Apparatus.**

Clarage Fan and Brownell Unit Stoker

Clarage Fan and Detroit Junior Stoker

CLARAGE
UNIT STOKER FANS

eral breakdown several years ago from which he never fully recovered.

He is survived by his wife and two daughters, Mrs. John A. Forrest and Miss Ann I. Nolan. Funeral services were held April 13, and interment was in St. Agnes' cemetery.

◆

Boston Association Was Active Last Year

At the annual meeting of the Boston Master Plumbers' Association, President Roberts, in his report, stated that 1930, in his estimation, was one of the best years the association ever had, from financial, business and social standpoints. He stated that the conference committee met several times during the year and settled to mutual satisfaction all questions. He thanked the conference board for its assistance. He also expressed his appreciation to the legislative committee for its untiring efforts. He thanked P. W. Donoghue, chairman of the state membership committee, for the splendid work done by the committee. Mr. Roberts said his board of directors were working with the Massachusetts state association's membership committee to build up the association membership, and he asked all members of the Boston association to co-operate with the movement.

Andrew F. Curtin, chairman of the legislative committee, stated in his report, that an important bill was presented at the state house during the past year. He explained that by directions contained in Chapter 16 of the Resolve of 1929 a special commission was established to study the administration, enforcement, and adequacy of the laws relating to plumbing.

The special commission consisted of Dr. George W. Bigelow, commissioner of public health; Andrew McGlynn, of the state board of examiners; Gerald J. Callaghan, attorney-general; P. W. Donoghue, master plumber; James C. Louter, journeyman plumber, and Charles W. Hull, architect.

The changes in the law suggested by the commission would prevent a journeyman from performing plumbing work unless he is in the employ of a master plumber; would permit an apprentice to perform work with a journeyman or master plumber; would require a domestic corporation desiring to engage in the business of plumbing to have one or more officers of the corporation to have a master plumber's license and hold at least 51 per cent of the capital stock; would have a journeyman as well as a master plumber on the state board of examiners; and provided that the examiner should formulate rules and regulations which would have the force of law throughout the commonwealth.

President Roberts appointed the following as members of the conference board for the coming year: James S. Cassedy, J. J. Cotter, A. N. Cronin, A. E. Roberts and J. G. Gillespie.

Past National President James S. Cassedy acted as official officer during the formal installation of the re-elected officers. He impressed upon each officer the importance of his particular office.

President Roberts was presented with a beautiful clock as a token of appreciation by the association for his work during the past year. A beautiful bouquet of flowers was given Mrs. Roberts.

Philadelphia Masters Inspect Seat Factory

Approximately 150 members of the Philadelphia Master Plumbers' Association, led by President Maney J. Feeney and George Hicks, chairman of the entertainment committee, made a trip to Camden, N. J., by motor car, accompanied by a special motorcycle police escort, on Wednesday, March 18, as guests of the Standard Tank & Seat Company, of Camden.

On their arrival they were greeted by Frank A. LaBaw, sales and advertising manager, who arranged

The two pictures above were taken at the plant of the Standard Tank & Seat Co., Camden, N. J., and show some of the Philadelphia master plumbers who were guests of the company on the occasion of an inspection trip through the plant

for an inspection trip through the factory. The party was divided into six groups and the following members of the Standard Tank & Seat Company's staff, Howard Weest, J. Martin Nevius, Howard C. Palmer, Warren Denning, J. L. Miller and S. L. Evans, each accompanied a group and explained the manufacturing operations. The groups were taken through the lumber room and glue-room, where the raw materials are assembled, and to the cabinet shop, where they saw in operation the band saws, shapers, boring and sanding machines.

The next stop was the inspection department and from there the party visited the varnish spray room, the sheet covering department, the research and chemical laboratory, the buffing department, the final inspection department, the assembling and hinging department, and finally the shipping department.

A luncheon at the Walt Whitman hotel followed the factory tour. A. W. Stedman, president of the company, welcomed the visitors and described the development of the company in its 26 years of existence. Mr. LaBaw outlined the company's advertising plans.

Mr. Feeney, in an interesting address, stated that the master plumber who refuses to become a merchandiser will eventually pass out of business. Mr. Feeney strongly urged those master plumbers present to pursue better selling methods and to take advantage of the sales helps offered by manufacturers. Mr. Hicks spoke briefly and expressed the opinion that the first hand information gained from factory inspection trips was of considerable assistance to master plumbers in making sales.

Sherman Landers and Howard Medholdt of the Aitkin-Kynett Co., advertising agency of Philadelphia, assisted Mr. LaBaw in taking motion pictures of the trip. The pictures will be shown to the members of the Philadelphia association at one of their future meetings.

Welding On Plumbing Jobs

Is Done With Speed, Safety and Economy Using

THE SIGHT FEED ACETYLENE GENERATOR

Welding copper pipes insures against leakage at joints.

Other jobs of welding come up in construction work on new and old buildings. Solve them by employing this service giving generator which never fails you because you know at all times just what gas is available. Send for Bulletin 31 giving full details and prices.

THE SIGHT FEED SALES COMPANY

43 Norwood Avenue Dayton, Ohio, U. S. A.

DART UNIONS

Here are shown the sturdy parts of the DART UNION. Notice particularly the TWO BRONZE SEATS that give double protection against leakage and corrosion.

Ask your jobber to supply you

E. M. DART MFG. COMPANY

PROVIDENCE, RHODE ISLAND

Sales Agents THE FAIRBANKS CO. New York Branches

Canadian Factory DART UNION CO., Ltd. Toronto, Canada

BURKS
SUPER-TURBINE
PUMPS

OVER YOUR HEAD!

Literally over your head. That extra 6 feet of water still in the well when ordinary shallowell pumps "quit" on the job represents the difference between *plenty of water*, and a "dry" well.

The *powerful suction lift* of the Burks Super Turbine Pump goes on down to the lowered water-table, and brings it to the surface under fire-hose pressure!

Install a Burks Super Turbine and earn your customer's good will as well as a handsome profit for yourself!

SERIES 7750
HOME WATER
SYSTEM

New Catalog No. 31 is yours for the asking
WRITE TODAY

DECATUR PUMP COMPANY DECATUR, ILLINOIS

PRODUCTS
BRASS
TRENTON

T B B T

Eliminate Uncertainty

Trenton Brass Goods will relieve you of any uncertainty about the equipment you use for they have an almost unparalleled reputation for quality and service.

The Trenton Brass & Machine Co.
TRENTON NEW JERSEY

Represented by
ROLLIN C. WILSON
7. E. 42nd St., New York, N. Y.
261 Franklin St., Boston, Mass.
427 N. Broad St., Elizabeth, N. J.

Milwaukee Wins Second Bowling Match from Chicago

The return bowling match between the Milwaukee and Chicago master plumbers at Milwaukee on March 26 resulted in an overwhelming victory for the Milwaukee team, the score being 2592 to 2194. The team representing the North and West Side Master Plumbers' Pleasure Club of Chicago seemed unable to get going and lost all three games to their opponents. Milwaukee was also victorious in the recent match in Chicago.

Three of the Milwaukee bowlers had scores over 200, the individual high game being won by George Stoehr with 212 pins. G. Wussow was second, with 204, and third place went to P. Klein, who bowled a 201 game. The high individual games for the Chicagoans were made by Al. Grosch and E. C. Wagner, with scores of 174 and 169, respectively. Robert Nelson made the best three-game average for the Chicago group. Henry Diedesch retained the leather medal with a total of 376 for the three games.

The Chicago team was composed of Robert Nelson, H. H. Diedesch, Al. Grosch, E. C. Wagner and Perry Larsen. Milwaukee was represented by G. Wussow, S. Dereszynski, George Stoehr, William Holzhhaeuser and P. Klein. The Milwaukee Elks Club was the scene of the match and a good number of rooters were on hand to cheer their favorites. A. A. Hoffman, chairman of the Milwaukee entertainment committee, had provided an ample supply of cigars and refreshments. The official scorekeepers were Walter W. Dusold, president of the Milwaukee association, and Charles Pelunek.

L. R. Friend, president of the Wisconsin Master Plumbers Association, presided as toastmaster at the dinner which followed the matches. Walter Dusold, as local president, extended the official welcome. Robert Nelson, president of the North and West Side club and Henry Swade, vice president, responded. F. C. Kuetemeyer, chairman of the convention and exposition committee, told of plans for the national convention to be held in Milwaukee. Others who spoke during the evening were Rupert J. Weber, past president of the Chicago association, E. C. Wagner, T. W. Merryman, Charles A. Dreier, William Redieske, J. Weil, William F. Hildeman, former president of the Illinois state association, Perry Larsen and Jacob Schuh. The distribution of prizes was followed with a program of entertainment provided by the local committee.

◆

P. W. Donoghue Moves Business to Larger Quarters

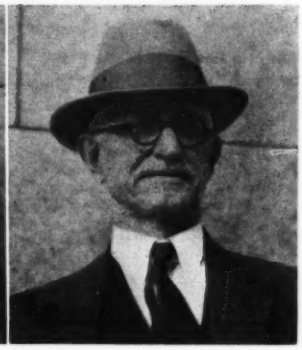
P. W. Donoghue, vice president of the National Association of Master Plumbers, has moved his plumbing and gas piping contracting business, the P. W. Donoghue Co., to larger quarters at 342 Newbury street, Boston, Mass. Mr. Donoghue's new place of business is in the Back Bay district of Boston, just a few doors from the Massachusetts subway station. He had been in business for many years at 170 Purchase street prior to this move.

◆

Kansas City Association Elects Officers

The Association of Master Plumbers of Kansas City, Missouri, has elected Carl R. Smith as president for the ensuing year; J. S. Levene, vice president; W. F. Coakley, secretary; and E. A. Kuebler, treasurer.

Right: Wray M. Scott, Omaha, new state president



Left: A. J. Weyant, Lincoln, retiring state president

Merchandising Talks Play Big Part in Nebraska Convention

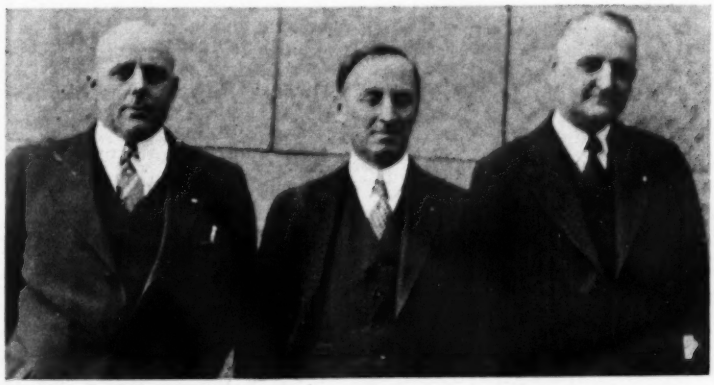
THE necessity of introducing up-to-the-minute sales methods, if the plumbing and heating industry is to keep pace with the rest of modern merchandising business, was the foremost theme of the 22nd annual convention of Nebraska Retail Plumbers' Association. The convention gave its unanimous approval to the recommendation of the national board of directors that a permanent office be established in Washington, D. C. There was considerable discussion concerning the problem presented by public utility companies as sales competitors, and several suggestions were offered as probable solutions to the situation. The importance of increasing the membership in order that the association may accomplish its aims was stressed, and ways and means of interesting non-members in its work were discussed. The following officers were unanimously elected on the recommendation of the nominating committee: Wray M. Scott, of Omaha, president; John H. Martig, of Omaha, vice president; Leo Baroch, of Omaha, treasurer; E. H. Brown, of Omaha, secretary. The new board of directors is composed of C. A. Rutherford of Hastings, Clarence Newmann of Sutton, R. E. Krimlofski of Omaha, and J. F. Bookstrom of Lincoln.

Association members seek improved selling methods in order to meet utility competition. Convention approves Nation's Capital as permanent office site. Wray M. Scott of Omaha is elected president

President Scott, in his speech of acceptance, requested that a rising vote of thanks be given to the retiring president, A. J. Weyant, of Lincoln, in appreciation of the splendid work he has done for the association.

Stress Importance of Retail Merchandising

"Forget you are a plumber and become a merchant." These were the words of Forest F. Dodds, manager of the Kansas City, Mo., branch of the American Radiator Co., and they almost perfectly express the temper of the



Left to right: John H. Martig, state vice president, and E. H. Brown, state and local secretary, both of Omaha; Fred A. Beier, St. Paul, Minn., national director

Top to bottom: L. B. Jeffries, Eagle-Picher Lead Co., Kansas City, Mo.; N. S. Finney, Plumbing and Heating Industries Bureau, Chicago; F. F. Dodds, manager, Kansas City branch, American Radiator Co.

entire meeting. He continued, in part: "The success of the plumbing and heating contractor depends largely on sales and service, but the quantity and quality, respectively, of these means nothing unless they are profitable. Salesmanship alone can make them profitable. The plumber-merchant must sell his customer not only on the ultimate saving realized from buying the best materials obtainable, but on the importance of proper installation and service, which is only permitted by efficiently figuring cost, overhead, and a reasonable profit on every job."

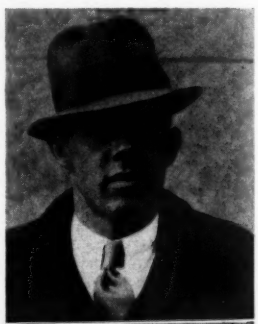
The greatest aid the contractor can give to the other branches of the industry is to merchandise his wares, said Mr. Dodds. He pointed out that a showroom or window display, arranged and lighted to the best advantage, was a valuable asset, and should be used if possible. There is no excuse, he continued, for failure to circularize among customers and prospects the various folders and sales literature, which is furnished by manufacturers. The value of this form of advertising is far greater than the small cost of mailing, and, when followed by a telephone call, or, better still, a personal contact, will often be the means of securing profitable business.

He remarked that the deferred payment plan had been forced on the retail branch of the plumbing industry by other merchandising enterprises, but that this situation should offer no difficulties, as the cost of financing a job must be considered in the overhead.

Such financing, Mr. Dodds feels, should never be undertaken until the prospective customer is submitted to a thorough credit investigation and found to be trustworthy. As F. D. Williams of the Midland Credit Bureau pointed out, "A sale is not a sale until it has been paid in full." At no time should a contractor extend longer credit terms to a customer than his jobber does to him, unless he has sufficient capital or banking facilities to enable him to successfully meet his obligations. The plumber, Mr. Williams continued, should always plan to meet his bills in order to take advantage of his discounts, and borrowing funds from his bank to do this is not only good business, but a money-making proposition as well.

The possibilities of obtaining splendid prospects through the medium of the journeyman was emphasized by W. T. Cotter, manager of the Omaha branch of Crane Co. "Your journeymen are ideally suited for this sort of thing," said Mr. Cotter, "by reason of the fact that they have access to the homes of your customers. Impress upon them that it is to your mutual advantage to remain on the alert for possible remodeling jobs."

Henry H. Kruger of Omaha stressed the fact that an aggressive merchandising program was impossible without co-operation. He entreated the members to take a fair profit; to figure a safe and reasonable overhead; and to refuse to cut a bid once it was made.



Top to bottom: Byron Grunwald and Barney Grunwald, both of Omaha; O. S. Roberts, Wayne, and Grant Rydberg, Omaha

It was the opinion of Wray M. Scott that little headway could be made until each branch of the industry confined itself to the specific purpose it should fill. The manufacturer, he said, should limit his activities to making the goods, and promoting and advertising it. The jobber, he feels, should act as the source of supply to the retailer, who should be the sole distributor to the consumer. However, in order to make this plan of distribution a success, the retail plumber must get out and sell, or else expect to eventually become merely a medium of mechanical installation, Mr. Scott said.

John Anderson of Omaha declared that the most serious ills of the industry may be found in the retail end of the business. His advice was to "stop being mechanical-minded and start being sales-minded."

Discuss Utility Competition

Allied to this discussion on merchandising is the problem presented by public utility

companies through their sales activities. George J. Daniel of Omaha declared that the low prices at which the utilities are able to dispose of their merchandise is the greatest difficulty. And, due to the fact that the utilities sale of merchandise is permitted to overlap with their sale of power, Mr. Daniel pointed out that they are in a position to enforce payment by threats of the discontinuance of the public services which they control.

John J. Ostronic of Omaha pointed out that such companies are in a position, if they so desire, to dispose

Left to right: W. T. Cotter, manager of Omaha branch, Crane Co.; L. B. Stine, manager, hospital division, Crane Co., Chicago; Walter E. Schoen, Platte Center

of their materials at cost or even below cost, reimbursing themselves by realizing additional profit on the utilities. Barney Grunwald of Omaha expressed the opinion that purchasing in carload lots was largely responsible for the low prices. He informed the association that in some states bills have been passed regulating or prohibiting merchandising activity on the part of these concerns. The movement is widespread, he said, and one of extreme importance to the welfare of the plumbing industry. He suggested that the members co-operate in securing the passage of such a bill in the state of Nebraska. W. T. Cotter remarked that, while such legislation would doubtless be beneficial, it would not lessen the contractors' need for more intensive sales methods, but rather that need would be increased. "Profit by the example set by your competitor," he said. "You are the logical source of supply, if you only take advantage of your opportunities."

Washington Approved as Permanent Office Site

Fred A. Beier of St. Paul, Minn., national director, requested that the convention consider the question of the permanent office. He explained that it was the opinion of the national board that Washington, D. C., is the ideal location for this office. On the motion of J. J. Ostronic the convention went on record as accepting the recommendation of the national body. The decision was unanimous, and was reached without debate.

Mr. Beier gave a report of the activities of the board during 1930, dealing particularly with the changes made in the association's by-laws. He announced the successful completion of the scholarship fund, stating that in his estimation this was one of the finest things the association has ever accomplished.

He urged that the Plumbing and Heating Industries Bureau be supported and endorsed the bureau's Regional Management Conferences. "To accomplish its purpose,"

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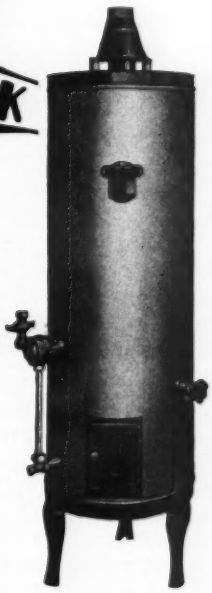

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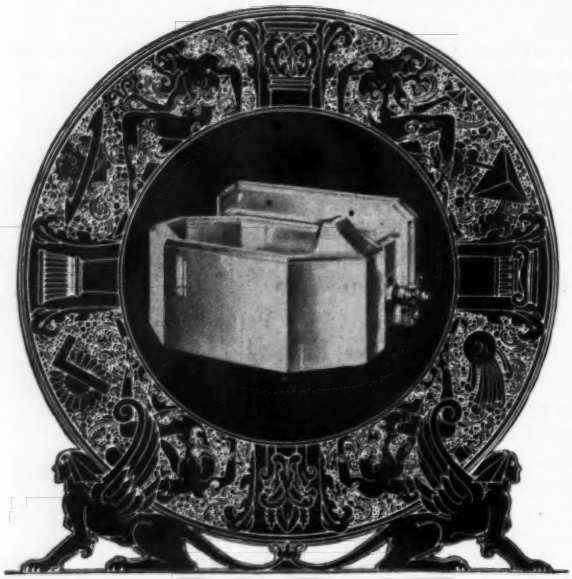

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he said, "the bureau must have the wholehearted support of all three branches of the industry. Inform your jobber of the work and accomplishments of this organization, so that he will do his share in supplying the necessary funds."

Read Business Papers Is Advice of National Director

He stressed the importance of reading the business papers. "These papers are full of important information to those engaged in the plumbing business," Mr. Beier said, "and I have found the merchandising sections invaluable."

This was also the opinion of N. S. Finney of the Plumbing and Heating Industries Bureau, who remarked, "There is still a big task confronting the retail branch of the industry in learning how to sell. We need ideas which come out of our own business. The business papers are continually offering splendid merchandising ideas, obtained from within the industry. These ideas are not mere theories, but have been proven workable time and again."

Mr. Finney remarked that the only way to obtain normal volume in business in periods when the building trades are at low ebb is by pushing modernization. He went on to say that this entails educating the public, not to buy plumbing and heating fixtures, for they already have these, but to buy better plumbing and heating fixtures. He concluded his talk by stressing the importance of good bookkeeping, and informed the association of the fine service offered by the bureau in this regard.

Glen B. Eastburn, commissioner of the Omaha Chamber of Commerce, compared business conditions in Nebraska with other states. He stated that an optimistic viewpoint should be the dominant thought, explaining that any other attitude has the absolutely wrong psychological effect, not only upon those with whom one contacts in a business way, but also upon one's self.

Roy N. Towl, city commissioner of Omaha, delivered an interesting address on the navigation of our river waterways.

Memorial services were held for Ernest Dussel of Columbus, Chris Mortensen of Omaha and H. W. Rush of Omaha. The service was read by C. R. Dodds of Omaha. The auditing committee, composed of R. E. Krimlofski of Omaha, J. F. Bookstrom of Lincoln, and L. E. Ring of Omaha, reported the books of the association to be in order. In the absence of Ray W. Bixby, who is confined to his bed by illness, C. R. Dodds reported on the last national convention.

The convention was formally called to order by E. H. Brown. Wray M. Scott extended a cordial welcome to the visiting delegates, and J. F. Bookstrom responded.

Monday evening the delegates and guests were entertained by a theatre party, and on Tuesday the annual banquet was held, immediately followed by a dramatization of typical scenes in a plumbing shop, presented by the Plumbing and Heating Industries Bureau.

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Fort Wayne Association Elects Officers

The Fort Wayne Merchant Plumbers' Association has elected Louis Gollmer as president for the ensuing year. Ed Oelschlaeger has been elected secretary and M. C. Connett, treasurer. The association headquarters are at 825 Calhoun street.

William J. Olvany of New York City, president, H. & P. C. New York state association

Four-Part Contract Is Sought by New York State H. & P. Contractors

Association feels that United States Government's one-contract policy is detriment to taxpayers. William J. Olvany of New York City is re-elected president. Certified heating and Merchandising are discussed

THEIR experiences proving that the United States government's present practice of letting contracts for new buildings on the one-contract basis is not to the best interests of the taxpayers, members of the Heating and Piping Contractors' New York State Association at their annual convention requested that their national officers take steps to secure the government's adoption of the four-part contract. The resolution, which empowered the state directors to take final action on the matter, suggested that the National Association of Master Plumbers and the National Association of Electrical Contractors be asked to support the proposal. This year's convention was held at Syracuse on March 23, with headquarters at the Onondaga hotel, and was the 36th annual meeting of the association.

William J. Olvany of New York City was re-elected state president for the ensuing year. E. W. Tompkins of Albany was again elected vice president and W. H. Johnston of New York City was elected secretary-treasurer of the association. Raymond Niles of Albany was elected recording secretary. The new board of directors will consist of the above officers and in addition T. X. Donovan of Syracuse, P. W. Schneider of Utica, Ed. Folley of Binghamton, E. J. Leary of Buffalo and John M. Hickey of Olean. The formal installation of the new officers was conducted by W. T. Cantwell of Utica.

Committee Appointments

The following committees were appointed by President Olvany to function during the convention:

Credentials Committee: D. Cady Fulmer, chairman, Syracuse, William H. Johnston, New York City, and Edward Joy, Syracuse.

Association Improvement Committee: T. X. Donovan, chairman, Syracuse, A. J. Eckert, Albany, and P. W. Schneider, Utica.

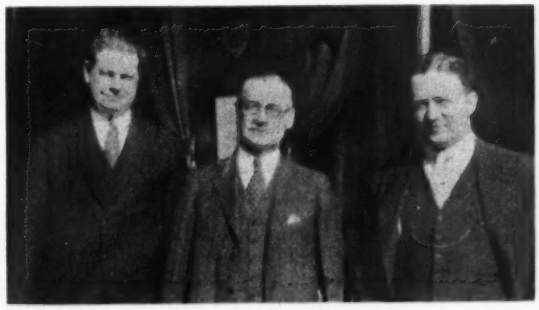
Association Relationship Committee: E. W. Tompkins, chairman, Albany, William H. McKiever, New York City, and Edward Folley, Binghamton.

Resolutions Committee: R. D. Williams, chairman, New York City, Roy Niles, Albany, Martin Utz, Rochester, and Howard Schall, Buffalo.

Auditing Committee: William Hubbard, chairman, New York City, William H. Johnston, New York City, and Leonard G. Kirk, New York City.

Nominating Committee: Edward Joy, chairman, Syracuse, Paul Schneider, Utica, and D. D. Williams, New York City.

Prominent visitors present were Joseph C. Fitts of New York City, secretary of the Heating and Piping Contractors' National Association, and Robert D. Williams, also of New York City, treasurer of the national body, both of whom addressed the gathering.



Left to right: Joseph C. Fitts, secretary, and R. D. Williams, treasurer, Heating and Piping Contractors National Association; Robert B. Miller, secretary-treasurer of the New York State Association

Mr. Fitts told of the series of merchandising plans being prepared by the national association for distribution to members. The complete series will consist of five plans, the first of which has already been distributed. Having developed standards as an outline in making installations and with the certified heating program as an assurance to the public of an adequate job, Mr. Fitts said the work of developing the idea, which has been in progress for some time under the direction of the trade promotion committee, has materialized to give members a more complete guide in getting business. The pro-

gram, centered on the modernization field, includes, according to Mr. Fitts, only methods that have been tried successfully. It has been arranged so that it is applicable to businesses of any volume. He explained that the first of the series, with every step of the way set down, has to do with how to obtain twenty prospects and to systematically solicit them; the second centers around an inspection campaign; the third, getting prospects; the

Left to right: Martin Utz, Rochester, N. Y., director; Howard S. Schall, secretary, Buffalo association

fourth, boilers and radiators, and the fifth, in November and December, an accessories campaign.

Mr. Fitts also touched on various other activities of the national association, particularly certified heating. He stressed the need for better selling methods and urged his hearers to give closer attention to the matter of welding.

Mr. Williams conveyed the greeting of the national body and also told something of the progress being made in extending certified heating. He explained that architects, banks, mortgage companies and other like organizations were being made acquainted with the certified heating movement, with the result that a growing number of architects are specifying certified heating on their projects.

The President's Report

In his annual report President Olvany emphasized the great need for association work at the present time, due to the falling off in new construction. He remarked that the national government has appropriated $69,940,000 for 300 buildings and that the heating contractor should make a determined effort to get his share of this enormous building program. Continuing, he said:

"We have started to encourage Washington to separate the heating, plumbing and electric contracts on all public buildings let by our national government, the same as is done by the states of Pennsylvania, New Jersey, New York and North Carolina, but remember, gentlemen, your committee cannot succeed without your assistance. Every member of our state association should write his senator or congressman asking that he support this measure. See your County chairman of your respective party, or your executive member, and ask for his aid. Where there are numbers there is strength, and when your committee can say we represent an association of hundreds of members, nation-wide, it means we are given attention. The past three years in Albany serve as an example. During this period when bills were presented against the interest of our industry we were fortunate enough to have a hearing on them. Although outnumbered in speakers, we were able to show the number of cities and towns our members represented and the cities that would be adversely affected by the passage of these bills. As a result they were defeated, which meant that every member of our state association was benefited."

John H. Doerr of Albany, secretary of the Capital District association, assured the members that the local organization would co-operate in following up all items regarding legislation.

Robert M. Bentley, secretary of the Consolidated Heating & Piping Contractors' Association, which is comprised of members from several cities and towns within a radius of 75 miles of Syracuse, told of the work being done there and of plans to enlarge their membership. He said that although Syracuse has been hard hit by the building depression, the association has certified 22 residential heating jobs since the adoption of certified heating in October, 1930. He urged all contractors to acquaint the architects and general contractors with certified heating.

M. E. Durkee, manager of the Heating & Piping Contractors' New York City Association, told of the work being done in connection with certified heating in New York City. He remarked that the growth of the movement depended upon the work of the members.

P. W. Schneider of Utica spoke on selling methods, and urged the association's members to concentrate on merchandising work. The visitors and delegates were

Left to right: G. L. Biggs, A. M. Byers Co., Pittsburgh; Milt. Conkling, Donnelly Valve Co., Malden, Mass.; F. R. Brennan, Crane Co., Chicago; and Schuyler Hoff, Donnelly Valve Co.

officially welcomed to the city by T. X. Donovan, president of the Consolidated Heating and Piping Contractors' Association of Syracuse.

Martin W. Utz of Rochester, chairman of the state board of directors, reported on the activities of the board during the past year. Mr. Utz explained that five meetings were held in Syracuse, and he told in some detail of the work that had been done in connection with legislation during that period.

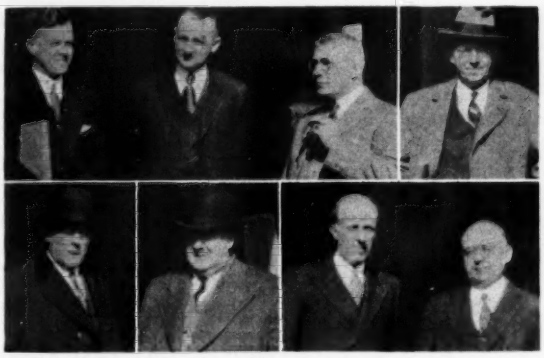
Local Secretaries Report

Robert B. Miller, secretary of the New York City association, read an interesting report of the activities of his organization, part of which follows:

"Our industry is faced today with more serious problems than it has ever faced during its existence. Some manufacturers and jobbers are selling direct to the consumer, mechanics are lumping labor, mail-order houses

are invading your territory and installment houses have bell-ringers going from door to door selling questionable heating systems on long term payments. The individual contractor is helpless against these organized groups. There is only one way to meet them, and that is by group effort.

"The New York State association has been affected as much as any other group by reason of the depression through which we have passed. In some ways this depression has been a blessing because it has purged our



Top row, left to right: M. E. Durkee, manager, New York City association; Robert M. Bentley, manager, Syracuse association; P. W. Schneider, and Louis Scharff, both of Utica. Bottom row: T. X. Donovan, president, Syracuse association; W. T. Cantwell, Utica; W. H. Johnston, New York City, and Floyd Sharp, Jamestown

industry of a great many irresponsible contractors that are a disgrace to any industry.

"The New York City association has had its share of woe due to lack of business, but I am glad to report that through the diligent work of our directors we have had very few deflections from our ranks. Our regular meetings are held once a month and every effort has been made to make them interesting and beneficial to the membership. This is accomplished by introducing subjects of interest or having prominent speakers address the meetings on important trade subjects.

"We believe that if our industry is to survive, and incidentally we intend to see that it does survive, the buying public must be protected against inferior workmanship and inadequate installations. The only way this can be accomplished is by the adoption of standards of workmanship and the close co-operation of members of the association. The New York City association is endeavoring to follow out this policy."

In reporting for the past year, Howard S. Schall, secretary of the Buffalo association, said that while membership in the Buffalo local has dropped off, there remains the nucleus of a valuable association among those members who realize the value of association work and the strength that co-operation brings to the individual. He said the principal activity of the Buffalo association has been in the quantity survey bureau, which he added has now been through more than a year of successful operation. Mr. Schall offered the assistance of his association to any association which is interested in the subject of quantity survey bureaus. He continued: "We feel that the bureau is not only a success, but that it is an aid to our members. We also feel that no association should place such a bureau in operation

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without first consulting with the existing bureaus and obtaining the benefits of their experiences.

"The Buffalo association feels that at the present time the state association can be of considerable assistance to all its members in several ways, but it particularly desires that special attention be given to a check on legislation in the state senate and assembly. Following the industrial depression and the unrest which it has caused, numerous bills are being introduced which we believe in the long run will be detrimental to our industry as to other industries which they affect. We also believe that the only way that such detrimental legislation can be avoided is by careful attention being given to these bills as soon as they are presented.

"At the present time there are at least four matters of legislation which should come to the attention of this convention. These are as follows:

"1. The proposed bill for registering steamfitters and requiring an approval of heat and power plant layouts by the State Department of Labor.

"2. The movement which has been initiated in the department of public works to change the municipal law and the finance law so as to permit the use of the one-contract form of bidding.

"3. The various bills before both senate and assembly which deal with the subject of job insurance or some other form of dole.

"4. The bill recently introduced at the instance of the state education department which would nullify the present legislation providing proper ventilation in our schoolhouses.

"There are two other legislative matters which we believe might properly come before the convention. The first of these is the question of the form of contract on United States government work. Our attitude on this is expressed by the resolution which we have submitted.

"The other matter is the question of an interpretation of the state laws in regard to the letting of contracts for buildings by the boards of education of union free school districts. Certain boards and their architects are claiming that these districts do not come under the state finance law or that section of the municipal law which requires separate bidding on the mechanical trades. So far as we can discover no legal ruling has ever been obtained from the courts on this matter, and we believe that the Heating and Piping Contractors' New York State Association, in justice to the taxpayers of the state and as a forward step in the industry, should investigate this matter and if necessary initiate legislation to bring the union free school districts into line."

The convention committee consisted of Edward Joy, chairman, Thomas Burns and T. X. Donovan, all of Syracuse, E. F. Crawford of Oswego and H. V. Hunt of Cortland.

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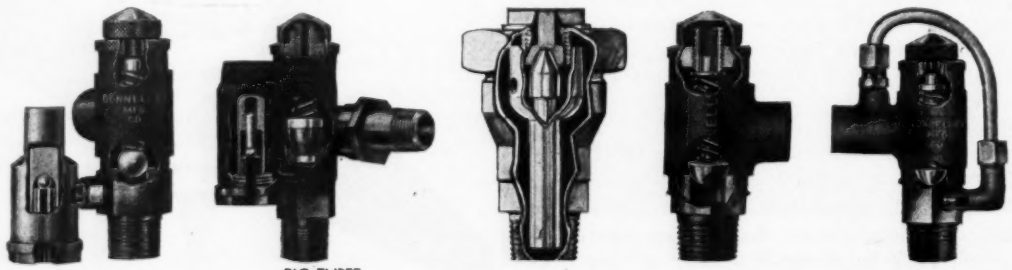
Death of C. P. Barth

C. P. Barth of C. P. Barth & Co., 1460 Filmore avenue, Buffalo, N. Y., plumbing and heating contracting firm, died recently of pneumonia after an illness of nearly one year. Mr. Barth was in his 64th year at the time of his death. He was a member of the Buffalo Master Plumbers Association and had been connected with the plumbing and heating industry for 47 years. Mr. Barth had been in business for himself for 22 years.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Now you can do away with annoying and troublesome searching for the proper type and kind of safety device to install on all your jobs. MAKE DONNELLY YOUR ONE SOURCE OF SUPPLY. The Donnelly Line is complete. Whatever your need you can get the most for yourself and your customer by insisting on Donnelly Valves.

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Val W. Palmer of Logan, state vice president, and George W. Bruerton, Salt Lake City, state president

Utah Favors Washington, D. C., Site for Permanent Office

State convention finds locals better organized. George W. Bruerton is elected president. Association will retain its executive secretary, and will continue its insurance plan

GEORGE W. BRUERTON, a member of the board of governors of the Salt Lake City and Utah Associations of Plumbing and Heating Contractors, was elected president of the state association at its regular semi-annual convention on March 14 at Salt Lake City.

Val W. Palmer, Logan, was elected vice president. Mr. Palmer has served several terms as a member of the board of governors and has done efficient work in helping to organize the northern part of the state. Charles Stone of Ogden was selected as secretary and Joseph F. Carthey of Salt Lake, as treasurer.

The convention voted in favor of the establishment of a permanent office in Washington, D. C., by the national association, as recommended by the national board of directors. The association also voted to continue for another six months the group life insurance plan now in operation.

A motion was passed that W. A. Rupea be retained for six months as executive secretary of the Utah association, provided the Salt Lake City association also employs him for a like period in the same capacity. The two associations have an agreement whereby each contributes one-half of Mr. Rupea's salary.

The board of governors will be appointed by the president. The board consists of seven members, with the president and vice president as ex-officio members.

The convention was called to order by Retiring-President Ambrose H. Higham, who completed his fourth term as chief executive. Mr. Higham expressed his gratitude at the attendance of the fifty delegates, including a large representation from the smaller towns of the state. Mr. Bruerton welcomed the delegates on behalf of the Salt Lake City association. Charles M. Swinnerton, national director from Los Angeles, Calif., complimented the members on the progress being made and recalled that two years ago Ogden, the second largest city in the state, had no local association. At that time Ogden was visited by Mr. Swinnerton, President Higham and Past-President Henry H. Bockholt, who organized the association, which has been a "going concern" ever since.

He further declared that the national association was greatly interested in the progress of the Utah organization and that strong state associations are needed to properly promote the plumbing industry, both from the viewpoint of the public and the members of the craft. He urged the members to take the word of their competitor in preference to others. He stated that with the construction of the Boulder dam and other allied projects, a large amount of money would soon be spent in the inter-mountain and Pacific coast territory.

Following roll call, minutes of the last convention at Ogden were read and approved. A report on the incorporation of the association as a non-profit organization

W. A. Rupea, executive secretary of Utah state and Salt Lake City associations, and Morgan S. Lott of Lehi, past president of Utah County association

was made. The principal advantages of the corporation entity were said to be the elimination of personal liability of individual members for association debts and obligations. Ordinarily, it was explained, members of an unincorporated association are personally liable for

Left to right: Ambrose H. Higham of Salt Lake City, retiring state president; Charles M. Swinnerton, Los Angeles, Calif., national director, and Henry H. Bockholt of Salt Lake City, past state president

debts and obligations incurred within the usual scope of the association business.

President Higham appointed the auditing committee, consisting of Mr. Bruerton, Earl Blumenthal of Provo, and Milton Bachman of Ogden. The credential committee, consisting of Mr. Palmer, A. E. Hurd of Salt Lake City and Leo Holbrook of Bountiful, was also appointed.

Report Progress for Locals

Alex Mortenson of Provo, president of the Utah County Association of Plumbing and Heating Contractors, stated that progress was being made in that vicinity. He declared that the Utah County organization was meeting monthly, while the Provo local meets weekly. He was of the opinion that with a smaller building program under way, it was all the more reason for the members to stick together.

Milton Bachman, vice president of the Ogden Association of Plumbing and Heating Contractors, reported that that organization was coming along nicely and was being ably assisted by the ladies' auxiliary. Mr. Palmer reported that it was expected that an association would soon be formed at Logan. There are five masters in that city and at least four are willing to become association members. He said that it was also likely that the ordinance providing for issuing of a certificate of competency would soon be put in effect. The city commission, while in favor of such a law, has been awaiting the outcome of the action on the bill providing for state control over the installation of water and plumbing fixtures in houses intended for human habitation, he said.

Mr. Rupea reported that while the bill providing for the state plumbing code was passed by the house, that it died in the sifting committee at the last hour, along with numerous other proposed statutes. He stated that this was the first time that the proposed bill had ever been passed by either house. He feels that with the favorable publicity and general sentiment in favor of it, as expressed by various members of the legislature, that various county commissions can possibly be induced to adopt an ordinance along the same lines.

Mr. Bruerton declared that the members should stand for a high type of installation and must use salesmanship and quality arguments to secure business. While a person will fail at times to secure work under those conditions, jobs taken at low figures are usually without profit, he remarked. There are certain people who are confirmed "bargain hunters" and whose business is not worth the trouble taken to secure it. He said that the members should adopt a slogan along the lines of "Quality Merchandise and Certified Workmanship at Reasonable Prices."

Describe Association's Work

Mr. Rupea made a general report of the association's activities during the past six months. He declared that the feeling between the architects, building contractors and other allied industries was the best it had been for some time. Considerable work has been done in outlying sections toward forming associations or bringing the masters in as individual members of the Utah organization where no local exists. He believes that the next six months will show a considerable increase in the membership and a general strengthening of the state association in those sections where it now has practically no representation.

He said that the public was becoming "plumbing conscious," and that organizations which had been against almost every form of sanitary plumbing regulation were changing their attitude.

At the opening of the afternoon session, Mr. Hurd made the report of the credential committee and Mr. Bruerton that of the finance committee, showing the organization to be in sound financial condition.

The question of continuing the group life insurance policy came up for considerable discussion. Under the present system, those members, business partners and wives, who desire to be insured may receive the benefit of the lower rate of group insurance by paying the premium through the association. A motion was passed that it be continued for six months for those desiring it, with the understanding that all insurance money be kept in a separate fund and that none of the association funds be used to pay premiums for members who did not contribute the amount due on their policy as stipulated.

National Director Speaks

Mr. Swinnerton made the principal address at the afternoon session. He reviewed the activities of the national association during the past several months, stating that the by-laws had been revised under the supervision

Left to right: A. E. Hurd, Salt Lake City; T. W. Coleman, Brigham City, and Alma L. Wharton, Ogden

of a committee consisting of Vice President P. W. Donoghue of Boston, Jere Sheehan, Jr., of St. Louis, and himself, and the revised draft adopted by the board of directors, as authorized by the last convention.

Among the changes, he said, was the substitution of the word "association" for "corporation" throughout, in order to eliminate confusion; making the vice president immediately become president, instead of acting president, in case of the death of the chief executive; and increasing the power of the board of directors for suspending or expelling any local or state association. Mr. Swinnerton also described the text books being prepared for the national association by William C. Groeniger of Columbus, Ohio.

The Plumbing and Heating Industries Bureau is doing excellent work for the industry through the furnishing of news stories on the advantages of good plumbing to magazines and newspapers, declared the speaker.

Mr. Swinnerton presented the recommendation of the national board that a permanent office be established in Washington, D. C. He told the reasons the board favored this proposition, and, as mentioned earlier, the Utah Association voted in favor of the plan.

Following Mr. Swinnerton's talk, President-elect Bruerton was escorted to the chair by Retiring-president Higham. Mr. Swinnerton and the retiring officers were given a vote of thanks and the incoming officers a vote of confidence.

Mr. Bruerton said he would try to follow the example of former presidents by leaving the Utah organization in an improved condition. He remarked that when a situation needs remedying it must be a matter of cause and effect, adding that he would study the industry with a view to eliminating the causes of the harmful effects.

◆

Address Union City, N. J., Masters

John G. Kelly of John G. Kelly, Inc., New York City, and Chetwood Smith of Watts Regulator Co., Lawrence, Mass., addressed a group of master plumbers of Union City, N. J., and vicinity, on March 23. Mr. Kelly discussed the improvement in business conditions, while Mr. Smith told of the engineering features in regulating domestic or other heating appliances.

◆

Death of James J. McManus

James J. McManus, master plumber of New Canaan, Conn., died recently at his home in that city. Mr. McManus was born in Montreal, Can. Later he came to New York where he learned the plumbing trade. He moved to New Canaan 13 years ago and opened a plumbing and heating shop at 17 Forest street. Since his death the business has been conducted by his daughter, Mrs. Ralph M. Scofield, who is in charge for the estate. Tentative plans are to incorporate under the name of James McManus. Besides his widow, Mr. McManus is survived by two daughters.

◆

William M. Bass, plumbing and heating contractor of Louisiana, Mo., has been awarded the plumbing and heating contract on the new La-Mo Theater building, in that city. Mr. Bass is also installing the plumbing system in the Armotrout Theater building, in the same city.

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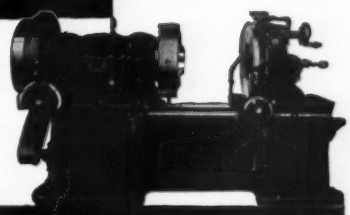

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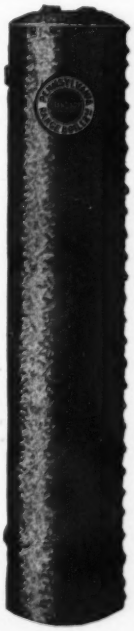

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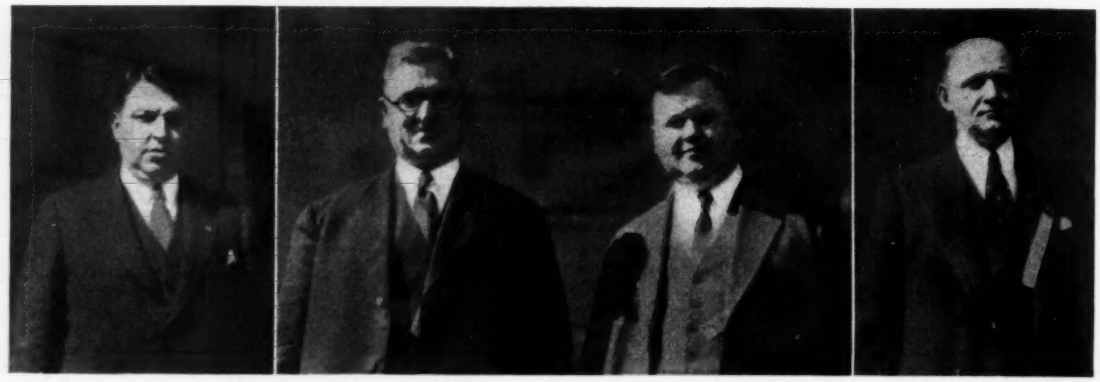


Beginning at the left: Edward G. Byrd of New York, field representative of the national association; F. D. Branson of LaCrosse, director of the Wisconsin association; H. E. Bergrud of Eau Claire; C. P. Finke of Sheboygan, director and retiring president

Technical Information Presented Is Outstanding Feature of Wisconsin Convention

A. A. Hooper of Madison Elected President

MEMBERS of the Heating and Piping Contractors Wisconsin Association met in Madison, Wis., on April 6 and 7 for their annual convention, which was held at the Park hotel.

The new president of the association is A. A. Hooper of Madison. Lewis J. Eron of Wisconsin Rapids is the new vice president and A. F. Bowers of Milwaukee succeeds himself as secretary-treasurer. M. Mueller of Milwaukee was reelected sergeant-at-arms. The board of directors consists of C. P. Finke of Sheboygan, who is the retiring president; George F. Reeke of Green Bay, C. A. Kaelber of Kenosha, R. R. Hughes of Racine, F. D. Branson of LaCrosse and E. Patterson of Appleton.

The convention was called to order on Monday afternoon, the morning having been devoted to registration, a meeting of the board of directors and a luncheon for the board of directors and the presidents of the Wisconsin local associations.

The first speaker of the afternoon was to have been Walter Klie of Cleveland, who is president of the National Association. He was unable to be present and Harry M. Hart of Chicago, a past president of the National Association and the present chairman of the National Association's sub-committee on boiler output, took his place.

Mr. Hart's talk was on the subject of "Heating Boiler Selection," which he opened with the statement that so many contractors have asked the association's boiler output committee why they recommend the same size boiler for mechanical firing that they do for hand firing that it seemed to be a subject of considerable interest. He pointed out that in the consideration of boiler selection, it is first necessary to get a clear picture of the actual demands on a heating boiler, and he listed the following loads as those which occur on every installation: First, net load; second, design load; third, maximum load; fourth, average load, and fifth, minimum load. He said that of these loads the contractor is most interested in the design load, maximum load and average load. The design load, he explained, is the normal peak load on the boiler when everything is turned on and when the building is at the desired temperature. It may occur for short periods each day during moderate weather or for extended periods during severe weather and, in his explanation, he indicated it may be figured quite closely from a working plan by taking off the piping and by figuring each square foot of surface of the pipes as equivalent to one and one-quarter square feet of direct radiation. This is added to the total net load. Ordinarily, a simple rule of adding 25 per cent to the net load is used in order to arrive at the design load.

Two pounds per square foot of connected radiation is used as a basis for figuring the weight of a system exclusive of the radiation

The maximum load to which Mr. Hart referred occurs when starting up a cold system and may happen only once in a heating season or it may happen every morning, depending on whether steam is carried continuously or the fire is banked at night, the latter case being the general custom. He said that, in order to arrive at the maximum load, three things must be considered to determine the factor to be added to the design load. These are, the inside temperature of the building at the start, the weight of the material to be heated to steam tempera-

ture and the time allowance for the heating up of the radiators, pipe, fittings and valves of the heating system.

For purposes of calculation he indicated that the weight of the system may be figured fairly accurately from a definite layout using as an average about 2 lb. for every square foot of connected radiation. As an example, he said that the modern type of cast iron radiation weighs about 5½ lb. per sq. ft. which, added to the piping, makes a total weight of 7½ lb. per sq. ft. of installed radiation. The inside temperature may be most any degree, but 50 deg. Fahr. may be used. As for the time required to bring up the fire to the point where the boiler will steam at its maximum rate, twenty minutes should be allowed for hand firing and ten minutes for mechanical firing.

He pointed out that to fill the system with steam in one hour from the time of starting up the fire, 20 minutes should be allowed to bring the boiler up to the maximum steaming capacity and the remaining 40 minutes should be allowed for filling the system with steam. At this point, Mr. Hart referred to a chart which he had prepared and from it determined that for a 40 minute warming period there will be a load on the boiler of 50 per cent above the design load and 87½ per cent above the net load. To go farther, he indicated that to fill the system with steam in 45 minutes from the time of starting up the fire the load on the boiler will become 100 per cent above the design load or 150 per cent above the net load. His reference to the American Society of Heating and Ventilating Engineers' code of minimum requirements brought out the fact that a sliding scale of factors was recommended for this heating-up, starting at 65 per cent for design loads up to 417 sq. ft., and gradually reducing to 40 per cent for 7,506 sq. ft. and over, a heating up factor of 55 per cent being recommended for a design load of 1,000 sq. ft.

In regards to the average load, he explained that this is the load that is required for the greatest number of hours during the heating system and bears the same relation to the design load that the difference in temperature between the inside of the building and the average outside temperature bears to the difference in temperature between the inside of the building and the lowest outside temperature. As an example, he said that in Chicago the average outside temperature is 34 deg. Fahr. during the heating season, while the lowest temperature is 10 deg. Fahr. giving 70 minus 34 or 36 degrees, and 70 plus ten or 80 degrees. Accordingly, the average load becomes 36/80 of the design load, or about 45 per cent, or 56 per cent of the net load.

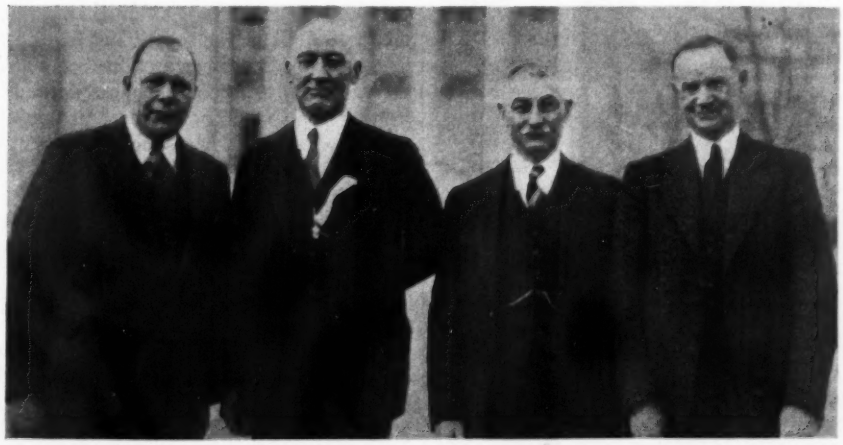
Demands imposed on a heating boiler in terms of per cent are listed for net, maximum, design, average and minimum loads

The fifth load to which he referred, namely, the minimum load, occurs when the plant is operating with the building properly heated and the outside temperature at about 50 degrees. This amounts to about 25 per cent of the design load or 31 per cent of the net load.

Based upon this discussion, the demands which are imposed on a heating boiler were listed as follows: first, net load, 100 per cent; second, maximum load, 175 to 206 per cent; third, design load, 125 per cent; fourth, average load, 56 per cent; fifth, minimum load, 31 per cent.

He next took up the question of efficiency, stating that we are not particularly concerned about the efficiency at maximum load for the hand fired installation because of the relatively short time during which it is imposed on the plant. He cautioned that care should be taken to make sure that the boiler will be capable of carrying the maximum load with a reasonable firing period, with the stack available, with a reasonable smoke hood temperature and with steam that contains not more than 2 per cent moisture.

Inasmuch as the average load is the load that is on the boiler for the greatest number of hours during the heating season, the efficiency at this load is important. His advice was that in selecting a boiler for a hand fired job, one should be chosen that will give the highest efficiency at the average load and as an example he assumed a problem covering a steam system with a net load of 1,000 sq. ft. of direct radiation. To this he added the equivalent load of the piping equal to about 25 per cent, or in this instance 450 sq. ft. This gave him a design load of 1250 sq. ft., to which he added a factor of 55 per cent



Lewis J. Eron, vice president, Wisconsin Rapids; Geo. F. Reeke, director, Green Bay; C. A. Kaelber, director, Kenosha; Frank R. King, Madison

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for the starting load, which gave him a maximum load of 1937 sq. ft. He listed the average load as 562 sq. ft. and the minimum load as 312 sq. ft.

He discussed the selection of boilers when oil burners or stokers are used for firing and stated that to date there is no accepted standard for testing an automatic stoker fired boiler or for rating mechanical stokers.

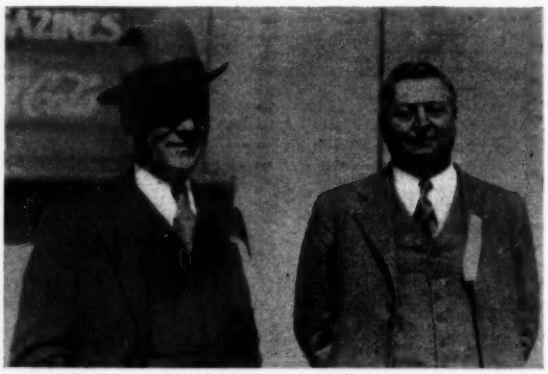
In the discussion which followed, it was stated that during a stoker test 12½ to 13 per cent CO_2, and a 600 degree Fahr. flue gas temperature at maximum load was obtained.

Mr. Hart told the association that standards have been adopted for certified refrigeration systems, and that the standards are ready to be put into effect on actual jobs.

E. L. Flentje discusses the work of the National Plumbing and Heating Institute

The second address of the afternoon was given by E. L. Flentje, who is the commissioner of the National Plumbing and Heating Institute. He discussed the work of the institute and urged the contractors to co-operate with them.

The morning of the second day was listed as the educational session of the convention, and Prof. Larson of the University of Wisconsin, gave an address on Heating, Ventilating and Air Conditioning. He spoke of the chimney effect in tall buildings where there is an outleakage of air at the top of the building and an in-leakage of air in the lower sections. He said that, in effect, elevator shafts become chimneys and present serious heating problems. Somewhere in these buildings a neutral zone exists where there is no in-leakage or outleakage, and he has taken on the task of investigating the subject to determine the location of this neutral zone. He listed this as a very important question facing the engineer and heating contractor who does work on tall buildings.



A. F. Bowers, secretary-treasurer, Milwaukee; A. M. Toussaint, Madison

In citing an actual instance, he spoke of an engineer who had presented his problem to him, the solution of which required an astonishing increase in radiation on lower floors over the amount of radiation required on upper floors.

In speaking of the developments in heating, he said that to stand still is to go backwards.

The subject of insulation came in for his considera-

tion and he pointed out that few people realize that insulation and weather-stripping is one of the finest investments that an owner can make in his building. He spoke of tests which had been made along this line and said that in one case where insulation was not installed, 833 ft. of radiation was required, whereas, when this same job was adequately insulated, only 467 sq. ft. of radiation was required, the difference being 366 sq. ft.

In discussing air conditioning, he stated that many industries could not exist in certain parts of the country if it were not possible to control heating and humidity. As an example, he mentioned the Rayon industry and the correct humidity necessary for the handling of the Rayon fibers. In this instance, when the humidity is such as to permit static electricity, the Rayon fibers repel each other and, instead of forming a smooth thread or piece of fabric, a woolly product results.

Any heating system which is 10 to 15 years old, according to Professor Larson, is obsolete, and should be remodeled or modernized

It was pointed out that anyone who has a heating system which is ten to fifteen years old has a plant which is so obsolete that it should be remodeled or modernized.

Prof. Larson discussed the subject of wind and its effect on heating, saying that not much was known about it fifteen years ago, but that at the present time, due to recent research investigation, a considerable amount of information is now available. Due to the wind effect, the peak load on the heating system may not necessarily occur at the lowest temperature. This is contrary to the general opinion and as proof of his statement he told of the records which are kept of the heat output of the central heating plant serving the University of Wisconsin. Here the peak load for the present heating season occurred on December 4, when the outside temperature was plus 3 deg. Fahr., and later, when the temperature dropped to a minimum for the season of 25 deg. below zero, the heating requirements were considerably above the peak load demand.

During the general discussion, the question of locating radiators was raised and Professor Larson stated the general principle that the heat source should be between the occupant and the place where the maximum cold exists in the room. He said that it might not be the most efficient location for the radiator, but that when other points, such as the comfort of the occupant, were considered, the loss in efficiency is outweighed.

The second address of the morning was delivered by J. C. Gibson. He talked on overhead, and stressed the point that it should not be disregarded. Also, he discussed the relation between increased volume and cost of operation.

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Warren, Ohio, Association Elects New Officers

The Warren Master Plumbers' Association, Warren, Ohio, recently elected Todd R. Pippinger as its president for the 1931-32 term. C. Raymond Stewart was elected vice president and V. E. Baldwin, treasurer. George W. Angstadt, 216 Main avenue, S. W., was re-elected secretary.

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Ben Bernzen, Boulder, new state president

Larger Membership Is Aim of Colorado Society

Ben Bernzen of Boulder is elected state president. Association approves establishment of permanent national office in Washington, D. C.

SOUNDING an optimistic keynote for 1931 business, members of the Colorado Society of Sanitary and Heating Engineers gathered at the Albany Hotel, in Denver, on March 19 and 20, for their 34th annual convention. Organization plans, with a view to enlarging the society's membership, were among the principal topics discussed at the two-day meeting. The convention went on record as favoring the establishment of a permanent national office in Washington, D. C. A committee was appointed to petition the state legislature for additional funds to provide for a full-time deputy plumbing inspector. This committee consists of E. H. Horton, Greeley; J. J. Wafer, Denver; Ben Bernzen, Boulder, and John P. Wallace, Denver.

Ben Bernzen of Boulder was elected to succeed Edwin B. Clayton of Denver as president of the state organization. Other officers elected were: H. H. Cannon, Pueblo, 1st vice president; E. H. Horton, Greeley, 2nd vice president; H. W. McGee, Denver, treasurer, and A. J. Adshade, Denver, sergeant-at-arms.

Left to right: H. H. Cannon, Pueblo, first vice president; E. H. Horton, Greeley, second vice president, and Edwin B. Clayton, Denver, retiring state president

President Bernzen was named delegate to the national convention which will be held at Milwaukee, Wis., in June. His expenses will be paid by the society. Mose Stone of Greeley was selected as alternate. The following delegates and alternates were also named, but they will pay their own expenses: Delegates: E. H. Horton, Greeley; E. B. Clayton, J. J. Wafer, A. J. Adshade, and J. P. Brickey, all of Denver. Alternates: A. J. Kelling, Boulder; H. H. Cannon, Pueblo; J. M. Boies, Ft. Morgan; L. R. O'Rear, Denver, and O. H. Krueger, Ft. Collins.

The executive committee, to be appointed by President Bernzen, will select the time and place for the next convention. The president will also appoint the state secretary. He will also appoint a committee to select a gift for Mr. Clayton as an expression of the association's appreciation of his service and loyalty.

Convention Committees

The following committees were appointed by President Clayton to function during the convention:

Auditing committee: Ben Bernzen, Boulder; E. H. Horton, Greeley, and Robert Demmer, Denver.

Resolutions committee: A. J. Kelling, Boulder; L. R. O'Rear, Denver; James Boies, Ft. Morgan,and E. L. Moore, Longmont.

Credentials committee: J. J. Laverty, Denver; F. H. Hanlin, Denver, and P. C. Rodgers, Ft. Collins.

Apprenticeship committee: J. P. Brickey, Denver; L. E. Sinclair, Denver, and L. R. O'Rear, Denver.

Standardization committee: George E. Smith, Denver; Fred C. Bock, Denver, and George Saaler, Denver.

Supply house committee: L. R. O'Rear, Denver; H. H. Cannon, Pueblo; Robert M. Small, Denver; A. J. Kelling, Boulder, and O. H. Krueger, Ft. Collins.

President's Report Cites Need for More Members

In his annual report, President Clayton told of zone meetings attended at Ft. Collins, Loveland and Long-

Part of the group picture taken at the annual convention of the Colorado Society of Sanitary and Heating Engineers

mont, and of meetings at Pueblo, Ft. Morgan, Brush and other towns. Mr. Clayton also described the legislative work done during the year and told of the organization with the state journeymen of the Sanitary Research Bureau. He said that membership in the state association had decreased considerably, due mainly to the fact that the Denver association had dropped a number of its members because of non-payment of dues. Continuing, Mr. Clayton said in part:

"The condition of the northern zone is healthy, a good interest being shown with considerable activity. I wish to thank them in particular for the co-operation and consideration they have shown. The Pueblo group has also shown every courtesy and friendship and I regret exceedingly that with the exception of one, they are not numbered in our membership.

"A few of our members in conjunction with Mr. Brownlow and Mr. Peterson have taken an active part in the work of the Sanitary Research Bureau, particularly with the Senate and House of Representatives, in trying to secure the enactment of legislation. Mr. Gross of the Western Federation of Labor and John Wallace, whom you all know, as well as several representatives, rendered us every possible assistance, and any success obtained was largely due to them.

"Gentlemen, there are a few of us who still believe in this society and the united efforts it affords, but unless more members are secured and present ones pay their dues we will be compelled to disband, as we cannot keep going much longer in the present condition of finances."

The report of the Sanitary Research Bureau also was made by President Clayton. He said that most of the bureau's funds had been spent in attorney fees and in getting in touch with master plumbers all over the state to get them to support the plumbers' bill, known as House Bill No. 171. He said that the association members did a good job of backing this piece of legislation, with the result that it passed the House of Representatives, but not without a fight. It is now to go to the Senate, he explained, where considerable opposition is expected. He urged his hearers to continue supporting the bill.

Mr. Clayton explained that in selecting the legislative committee he had purposely limited it to Denver men because it would be easier for them to get together on short notice. He remarked, however, that members from other parts of the state would be expected to lend their assistance by telephone and telegraph when the time was ripe.

Speaks on National Affairs

H. O. Green of Tulsa, Okla., treasurer of the National Association of Master Plumbers, was the official representative of the national body at the convention. Mr. Green outlined the activities of the organization which he represents, told of the completion of the scholarship fund, the revision of the national by-laws and other accomplishments. He described in some detail the plans

Another part of the group picture taken at the annual Colorado state convention

for the coming national convention in Milwaukee and urged as many as could to attend. Mr. Green emphasized the importance of building up the state's membership. He said the national was ready to assist in this by waiving the per capita tax during the first year on new members secured by the state association during the course of a membership drive. He said that if Colorado desired to take advantage of this offer and start a campaign, it should first advise the national office.

Mr. Green also explained the attitude of the national directors concerning the establishment of a permanent national office in the city of Washington, D. C. He said the directors had gone into the matter thoroughly and that they were convinced the proposition was sound. He told of the action taken by those states which have already held their annual conventions and asked that Colorado express its attitude in the matter. The question was referred to the resolutions committee and, upon its recommendaiton, the convention voted in favor of the proposition. Mr. Green also told his hearers of the services offered the contractor by the Plumbing and Heating Industries Bureau. He urged the delegates to take advantage of the bureau's services and to lend their support to the organization.

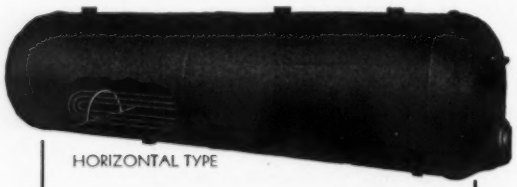
Convention Speakers

E. G. Plowman, director of the bureau of business research, Denver University School of Commerce, addressed the convention on modern business practices. He referred to the important part advertising is playing in today's business and told the effects of mass production. He said that many businesses are slow in recovering from periods of depression because they do not make proper use of the statistical data that is now available. He said that the problem of today is not to increase volume, but to improve efficiency and lower the cost to the consumer. He said group effort was needed to sell goods. He suggested that the master plumber strive to create better relations between himself and the public.

E. H. Horton of Greeley, secretary of the Northern Colorado Master Plumbers' Association, told something of his experiences and activities since taking office. Mr. Horton said that to his way of thinking, the greatest menace to the plumbing and heating business today is the direct-to-you house. He cited the case of a prospective customer of his who was considering purchasing plumbing material from a mail order house. Mr. Horton showed this prospect that the price quoted by the mail order house did not include all the fixtures that were needed to make a complete job, that the fixtures sold by the mail order house were not of high quality and that the quoted price did not include labor and the many other materials needed for a complete job. Eventually this job went to another master plumber, but Mr. Horton was satisfied because he had convinced this home owner that the master plumber was the logical man to do the work.

In closing, Mr. Horton stated that he was going to do everything in his power to secure new members for the association, as he feels that it is only through organized efforts that anything can be accomplished in improving the business.

I. A. Fuller, state plumbing inspector, spoke on the



HORIZONTAL TYPE

HEATING CAPACITY IN GALLONS PER HOUR 40–180° WITH STEAM AT

HS	0 lbs.	5 lbs.	10 lbs.	15 lbs.	25 lbs.	50 lbs.	75 lbs.	100 lbs.
2½	50	65	75	85	95	115	130	140
5	100	130	150	170	190	230	260	280
10	200	260	300	340	380	460	520	560
15	300	390	450	510	570	690	780	840
20	400	520	600	680	760	920	1040	1120
25	500	650	750	850	950	1150	1300	1400
30	600	780	900	1000	1140	1380	1560	1700
40	800	1040	1200	1360	1500	1840	2080	2240
50	1000	1300	1500	1700	1900	2300	2600	2800
75	1500	1950	2250	2550	2850	3450	3900	4200
100	2000	2600	3000	3400	3800	4600	5200	5600
150	3000	3900	4500	5100	5700	6900	7800	8400

This table will enable you to figure accurately the capacity heating unit you need. Save it.

G & C BOILERS

TRADE MARK REGISTERED

STORAGE TANKS

GERSTEIN & COOPER

STORAGE TYPE WATER HEATERS

In Gerstein & Cooper Copper Storage Tanks, you will find only the highest quality materials and workmanship.

The Gerstein & Cooper method of brazing has proven itself far superior in every respect.

That is why these tanks are always watertight and why they withstand corrosion and the effects of long service.

All Gerstein & Cooper Tanks, either the vertical or horizontal type, can be furnished with or without heating elements which are easily removed.

Write for complete catalog.

GERSTEIN & COOPER COMPANY

1-3 West Third Street

So. Boston, Mass.

W. I. Collier & Co., Baltimore, Md. G. Mason Price, Montreal, P. Q.
E. N. Cokelair, Inc., New York, N. Y.
Troop Water Heater Co., Pittsburgh, Pa.
L. E. Post, M. E., Engineering & Sales Co., Cleveland, Ohio

need of proper training for apprentices and said he would like to work with the association in an effort to work out some plan for apprentice training in all parts of the state.

The report of the apprenticeship committee showed that about thirty apprentices were registered in the state, and that the number was steadily diminishing. The convention commended J. P. Brickey, Peter Menzies and Lee Sinclair for the efforts they have put forth in instructing apprentices.

F. J. Peterson, representative of the journeymen, spoke on the need for organization among the master plumbers in Colorado. He said that the journeymen considered themselves business partners of the master plumbers and, consequently, the success of the journeyman depended upon the success of the master plumber for whom he worked.

The annual banquet was held on Thursday evening in the grand ball room of the hotel. Dinner was followed by dancing. The entertainment committee for the convention consisted of G. A. Stocking, chairman, Robert Demmer, V. A. Kiser, F. H. Hanlin and F. L. Welle.

◆

Adopt Resolution on Death of Michael L. O'Malia

In recognition of its loss through the death of M. L. O'Malia, one of the leading contractors of Evanston, Ill., the North Shore Plumbing Contractors' Association has adopted a resolution recognizing the active part which he took in the plumbing business in his city. The committee selected to draft the resolution consisted of George S. Moore, chairman, John J. Cahill and George A. Kearney.

◆

Death of William A. Wilson

William A. Wilson, master plumber of Buffalo, N. Y., died recently at his home in that city, following a brief illness. Mr. Wilson had been engaged in the plumbing business in Buffalo for approximately 35 years, and at the time of his death was a member of the Buffalo Master Plumbers' Association. He was in his 60th year.

◆

Death of Allen Ramsay

Allen Ramsay, for nine years assistant plumbing inspector of Louisville, Ky., died recently in that city. Mr. Ramsay was in his 69th year. Infection caused by a small cut resulted in blood poisoning which caused his death. Mr. Ramsay had been in the plumbing business all his life, and at one time was in business for himself on West Jefferson street, Louisville. He was a member of the Victoria lodge and the Republican club. He is survived by his widow, a son and a daughter.

◆

Fearey & Moll of Oakland, Calif., have recently received the following contracts: Plumbing, heating and ventilating in the Longfellow School, $18,000; plumbing, heating and ventilating in the Berkeley Free Library, $28,000; plumbing, ice water, heating and ventilating in the Magnin Dry Goods Store, $16,000; plumbing, heating, sprinkler system and sheet metal work in I. H. Mauzy's residence, $16,000; plumbing and heating in the Willow Brook Creamery, $8,000; contract of E. J. Hampton Electric Co., $12,000; heating in the Federal Land Bank building, $2,000.

DEHN'S ACME GREASE TRAPS

DOUBLE TRAPPED WATER COOLING CATCH BASINS

Water Cooling Grease Catch Basins are the only practical, economical and satisfactory to install. Water Cooling Grease Catch Basins positively congeal the grease in the Basin. Furnished in sizes that will meet every requirement.

Our more than thirty years' experience originating and designing Modern Sanitary Appliances is your assurance of satisfaction. "Beware" of the so-called "Just as Good."

Sold by Responsible Wholesalers Everywhere

WRITE FOR CATALOG No. 30

You are Invited to Visit Our Exhibit, Booth 119. N. A. M. P. Convention .. June 22-25, 1931 Milwaukee, Wisconsin

Fig. 113—Patented. Acme Double Trapped Water Cooling Grease Catch Basin.

COMPOUND INJECTOR & SPECIALTY CO.

George J. Dehn, S.E., Pres. 419-421 D N. Laramie Ave., Chicago, Ill.

TABER SUMP PUMPS IN GENERAL USE

Built for 5 ft. pit. Single and Duplex Units

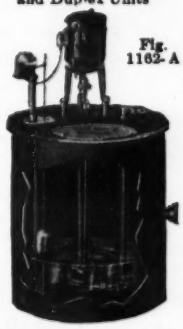


Fig. 1162-A

Sold with and without tank

The larger Taber Sump and Sewage Pumps are being specified and used on jobs requiring high grade equipment. Following are single unit sizes in general use. . . . 1750 R.P.M. 60 Cycle and Direct Current.

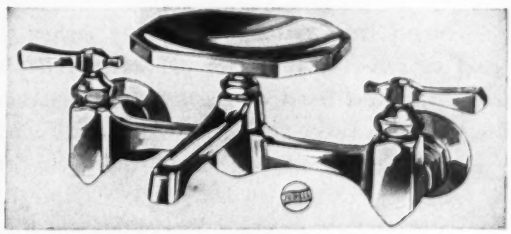
Type	G.P.M.	Head	Outlet,in.	Plate in.	H.P.	Wgt lbs.
AL-25-2	25	20	1	24	½	272
AL-50-2	50	20	1¼	32	¾	350
AL-75-2	75	20	1½	36	1	436
AL-100-2	100	20	2	36	1½	481
AL-150-3	150	20	2½	36	2	607
AL-200-3	200	30	3	36	3	675
AL-300-3	300	30	4	36	5	772

Write for complete Bulletin SS-629

TABER

TABER PUMP CO Est 1859

Taber Pump Co., 290 Elm St., Buffalo, N.Y



G 1805

A Real Quality Art Fixture at a Surprisingly Low Price

Sold by leading Jobbers

Milwaukee Flush Valve Co., Milwaukee, Wis.

Remodel with Moore Hangers

Give your remodeling prospects the convenience of Moore Hangers.

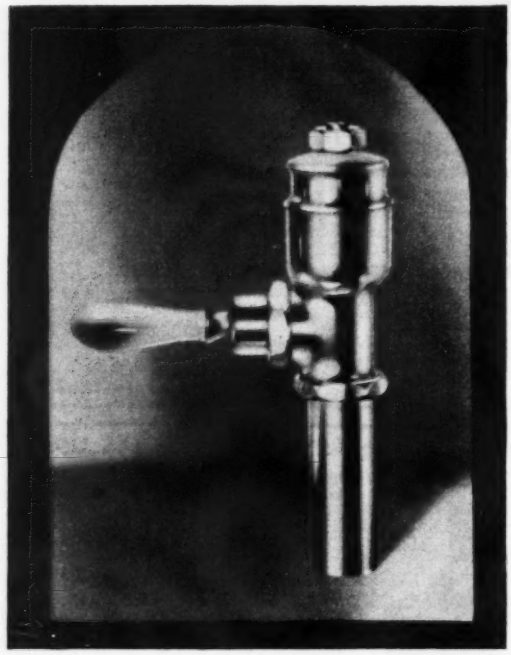
There's one for every job, one for every type of radiator.

Order a supply today from your jobber. Have them on hand. Your customers will buy them on demonstration.

CARTY & MOORE ENG. CO.

Incorporated

611 W. Larned St., Detroit, Mich.



THE NAVAL FOR SHIPS

In ship service flush valves must overcome unusual handicaps and operate under conditions of sandy, corrosive and salt water which would render ordinary equipment useless. The NAVAL is a Special Alloy and Monel Metal flush valve which stands up under these severe conditions and affords *dependable operation regardless of the character of the water supply.*

THE STAR FOR BUILDINGS

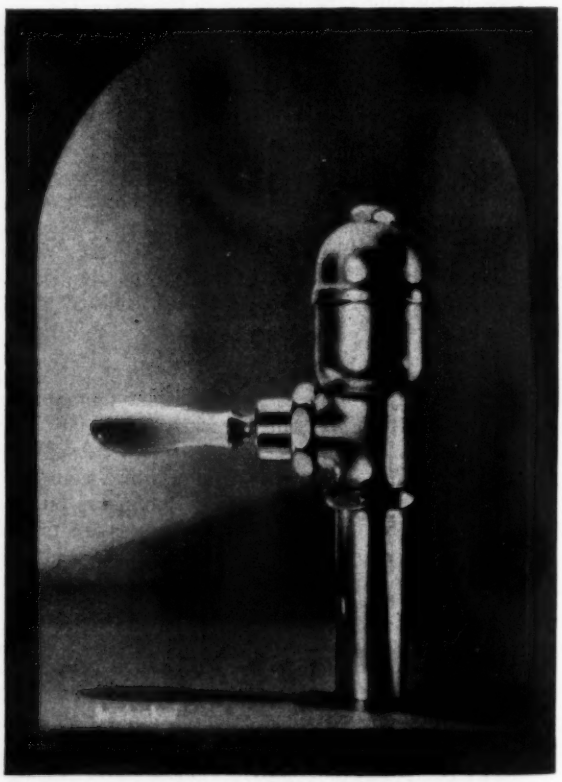
The STAR is superior to any other flush valve for buildings as it *is exactly the same as the NAVAL* except that it is made of high grade metal suitable for fresh water and has a different exterior.

Sand and silt cannot clog either the by-pass or relief valve—both are *self-cleaning and unaffected by dirty water.* Both the relief and main valve seats are reversible and all working parts are removable without disconnecting the flush valve.

A handy screw adjusts the amount of *flush to suit any fixture.* This requires no skill, no opening of the valve, no shutting off of the water and *no adjustment of the by-pass.*

The STAR has a beautiful design that *improves the appearance of any fixture or bathroom.* Sharp angles that are objectionable and crevices that are hard to keep clean have been reduced to the minimum.

Thus, *in both operation and appearance, the STAR is unequalled for buildings* —the result of twenty-five years devoted to the manufacture of flush valves exclusively.



Write or telephone our nearest office for full information

SLOAN VALVE CO • CHICAGO

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

REPORTS from manufacturing, wholesaling and contracting branches of the industry indicate that plumbing and heating business was little changed during the past fortnight in comparison with the preceding like period. While manufacturers and wholesalers reported their total volumes practically unchanged, they did in a number of instances indicate that the trend is more definitely upward than it was a month ago. From some jobbing centers reports are received that calls from master plumbers for roughing-in materials are more numerous since the first of April. Demand from the trade for enameled ware, pottery and plumbers' brass goods, according to wholesalers, is no better than fair for this season of the year. Wholesalers, generally, have minimum working stocks on hand. They are not anticipating their future needs but are depending on the quick shipment service of manufacturers to keep stocks at working levels. No word of changes in manufacturers' prices to wholesalers was received during the fortnight.

The latest bulletin of the National City Bank of New York says concerning the business situation: "The past month has brought no marked change in the business situation. The decline in industrial activity has been halted, and business, aided by seasonal influences, has shown a tendency to expand. Thus far, however, the recovery has been irregular and slow, and the question as to its permanence is still a matter of opinion rather than practical demonstration. This is to be expected at this stage, following so profound a disruption of economic conditions as has occurred all over the world."

February shipments of enameled sanitary ware, as reported to the bureau of the census by 21 manufacturers who comprise practically the entire industry, totaled 122,033 pieces, as compared with 276,056 in January and 194,858 pieces in February, 1930. The total number of pieces shipped during the first two months of 1931 amounted to 398,089, as compared with 371,578 pieces in the first two months of 1930. February shipments of vitreous china plumbing fixtures, including all vitreous chinaware which in regular practice is connected with a drainage system, as reported to the bureau of the census by 25 manufacturers, totaled 204,524 pieces, as compared with 200,905 pieces in January and 203,750 pieces in February, 1931. January shipments of plumbers' woodwork, as reported to the bureau of the census by 19 manufacturers, totaled 212,683 pieces, as compared with 247,513 pieces in December, 1930, and 132,932 pieces in January, 1930. Shipments of oil burners for the first two months of 1931, as reported to the bureau by 106 manufacturers, totaled 7,268 burners, as compared with 9,869 burners in the first two months of 1930.

STANLEY RESOR

***President*, J. Walter Thompson Company**

"I thought that we had some appreciation of the value of the A. B. C. until we started work in countries where circulations are not audited. It is difficult for anyone in this country to realize what the absence of audited figures means in additional outlay of time, work, and money. In many offices in other countries it has taken our organization literally months of intensive advance work solely on the problems of circulation. Most of the information obtained under these difficulties, had there been an A. B. C., would have been instantly available.

"To these first costs must be added the continuing cost of keeping circulation data up to date.

"I think it can be safely said that the A. B. C. is one of the outstanding successful co-operative undertakings of the generation."

Stanley Resor

GEORGE PEARSON

Director of Media

Chicago Office, J. Walter Thompson Company

"Perhaps only those of us who have been buying advertising space for a time we have to measure in decades, can fully appreciate the great job the A. B. C. has done. And its work is just as necessary now as it ever was in the past.

"I think the current trend of business requires us all to give more detailed study than ever before to actual A. B. C. Audit Reports and Publisher's Statements. To appraise the circulation of a publication intelligently, we must know the distribution, circulation methods, subscription prices and other facts that are reliably shown only in the reports of the Bureau.

Geo Pearson

● Would you picture for yourself American advertising as it existed two decades ago? Follow business, then, as it seeks the markets of the world. Survey with men in American advertising agencies, the field of media in Britain, on the Continent, in South America, in the Far East.

There, in circulation claims, chaos still prevails. Expensive research and constant vigilance are needed in buying space. Advertising must surmount a needless hurdle—an obstacle which in this country has been removed forever.

Facing the same conditions under which advertising still struggles in other lands, American advertising sixteen years ago demanded a change. The regulatory force came from within. Advertisers, advertising agencies and publishers joined in founding the Audit Bureau of Circulations.

Everybody today knows the plainly printed reports of the A. B. C. They cover almost every important publication. They are packed with facts which the wise buyer of space takes pains to heed.

Men who seek the last dollar of value in their advertising budgets are not content with figures on paid circulation only. They search out the whole story, as told in the complete A. B. C. reports. And therein they find the gauge to true values in the selection of advertising media, the means to make an appropriation yield the results that modern business demands.

As a recognition of service, not only agencies and publishers, but a distinguished group of advertisers in the United States and Canada, hold membership today in the Audit Bureau of Circulations.

An advertisement by the
AUDIT BUREAU OF CIRCULATIONS
Executive Offices • • • Chicago

CENTRAL WEST

Chicago Construction Makes Big Gain

BUSINESS in this territory failed to show improvement of any note during the past fortnight, although in a few instances reports were received of a slightly better call for roughing-in material. While making no pretense that volume is by any means satisfactory compared with previous years at this season, one soil pipe manufacturer interviewed stated that business since April 1 has been better than at any time so far this year. Contractors' requirements for rough material, according to wholesalers, are maintaining about the same level that has prevailed for some time and, consequently, the movement of steel pipe, wrought iron pipe and fittings used in connection with this stage of construction is only moderate. The call from master plumbers for enameled ware, pottery and plumbers' brass goods hardly equals that for roughing-in products, which condition is in keeping with the season. Manufacturers of boilers, radiators and other heating materials report only a fair seasonal business for the past two weeks and it seems to be the opinion of many sellers of these products that little change can be expected in the movement of this type of goods in the next several weeks. Demand for range boilers seems from most reports to be holding at a fair level considering the rate of business generally, and the price situation in this commodity continues satisfactory in the eyes of manufacturers.

Wholesalers are maintaining minimum working stocks in practically all lines, but as a rule are able to take care of the requirements of their contractor customers without delay. Jobbers are aided in this phase of their business by the quick shipment service provided by manufacturers in supplying staple items. Orders reaching manufacturers' representatives are mainly for small quantities to replace material moved into consumption, wholesalers displaying little willingness to place business for future delivery.

The market, generally, maintained a fairly firm tone during the fortnightly period, and no price changes were announced by manufacturers of the major plumbing and heating commodities.

Building figures for forty-four Chicago suburbs for March, just compiled by S. W. Straus & Co., are not quite so cheerful as they were last month. Then the February, 1931, figures were considerably higher than those of the same month of 1930. Now along comes March, 1931, with a total of $1,724,600 for the forty-four suburbs, which sounds quite imposing until it's compared with March, 1930, which had $2,956,615. That means the loss is 41.6 per cent.

And no consolation is obtained by comparing the March, 1931, figures with those of the preceding month of February, 1931. There also is a loss of 29.9 per cent, for the $1,724,600 of March compares with $2,463,589 for February.

By combining the figures of both Chicago and its suburbs a more cheerful picture is obtained. The metropolitan area totaled $19,778,700 for the month of March, an increase of 91.3 per cent over the February total of $10,340,489, and a gain of 160 per cent over the March, 1930, total of $7,606,415.

Chicago alone was responsible for $18,054,100 of the metropolitan volume, which was a gain of 129 per cent over the previous month and of 288 per cent over the same month a year ago.

Building permits in Chicago for the week ending April 11 continued the upward trend indicated by the above figures for March, and totaled $2,414,600, as compared with $1,529,100 for the corresponding week of 1930.

NEW YORK

Trade Continues Uneven

WHILE the trend of business development in the plumbing and heating industry around the Metropolitan New York area seems to be definitely upward, there are, according to the information gathered, a number of influences delaying its course. One factor mentioned as an impediment is the credit situation. The lack of any volume of speculative building, which has always been a factor in the absorption of substantial tonnages, is having its bearing on business from the viewpoint of sales volume. Coupled with the knowledge that ample funds are available for building, it is a generally accepted fact that lenders are selecting carefully those to whom this type of credit is extended, while on the other hand numerous expressed opinions indicate that the real estate market is not favorable to this type of operation. Car loadings, always an index of business, are reported off. This was especially true during the last week of March, when a decline of 1,863 cars was suffered over the preceding week, according to a report of the American Railway Association.

Notwithstanding these retarding influences, many manufacturers, wholesalers and contractors are, according to statements, getting encouragement out of the market from the prospects the future holds. Westchester County and Long Island seem to be the brightest areas, with Northern New Jersey possibly the slowest in business recovery. Manhattan architects and engineers in many instances are busy with the plans of building construction on which work is about to go ahead. According to a late report from the F. W. Dodge Corp., Metropolitan New York during the quarter just passed registered a gain over the first quarter of 1930 in residential building. The report also indicates that on a floor space basis, contracts for this type of work increased by more than 2 per cent.

Following a strong copper buying movement in February, sales slumped rather abruptly, and with this falling off came weakening in prices which declined during the second week of April to the low for the year of 9½ cents a pound, followed by an upward movement to an unsteady 9¾ cents on April 11. Brass pipe prices, however, were not changed since the readjustment of March 12. Prices on other brass products seem to be holding, but little buying activity is reported. Long pipe has moved

slowly during the last fortnight. Soil pipe buying, however, was probably a little more active since the previous report. The fixture business, both pottery and enameled iron, was difficult to gauge, as a producer landing an order for a large apartment house found business better, while those who obtained orders aggregating a substantial number of pieces a few weeks ago had a less encouraging report. Prices quoted, however, seem to indicate firmness. The movement of range boilers was slightly better than when last reported. Boilers and radiators are making a strong effort to give a good account of themselves, and the first half of April witnessed a little better demand than during the last two weeks of March. Sources of supply generally are in a position to care for wants satisfactorily.

MIDDLE ATLANTIC

Demand Holds Same Level

RECENT reports resulting from interviews with wholesalers in the Middle Atlantic section would indicate that no drastic upward trend has made itself apparent insofar as business volumes are concerned. Seasonal activity continues to produce a greater number of inquiries for new plumbing materials, but jobbers say that contractors are reluctant to place orders. Wholesalers, however, show a tendency to place stock commitments in anticipation of early business.

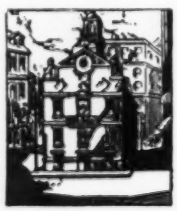
There is a noticeable amount of small building operations being announced by architects, mostly comprised of school and public buildings, while the residential total is undoubtedly on the increase as the season for this type of operation approaches. The larger type of construction seems to be confined to banks and factories, as these institutions are obviously taking advantage of the cheaper material and labor costs to provide better facilities for future business. The commercial speculations, such as office buildings, are becoming less in prominence as the year moves along.

The past fortnight was similar to past weeks in this section, it is reported by manufacturers' representatives, in that business was spotty and orders received were mainly for small quantities. Producers of plumbing and heating goods have ample stocks on hand to meet all jobber requirements in short order. Wholesalers' turnovers, while still of a rather slow nature, are encouraging. In most instances, sufficient stocks are available for quick demands and producers' service is such that they can grant distributors replacements in ample time.

No changes in published sheet prices have been announced by manufacturers, and quotations are generally reported as being firm among all commodities. None of the major items, such as pottery, boilers and radiators and pipe, have shown a tendency to increase in point of shipment. An exception to this is enameled ware, the recent price change resulting in many wholesalers committing themselves for their future needs in order to take advantage of the old prices before the higher ones became effective. Pipe tonnages are not commensurate with those of other years and likewise the demand for pottery and radiation has fallen off in comparison with the demands of last year at this time. Specialties are enjoying a fairly good turnover as the present season brings forth the desire for replacement and modernization in the household.

Construction figures released by the F. W. Dodge Corp. for the Middle Atlantic section show an increase in total valuation for the 10th week as against the 9th, as follows: $6,379,-500 for the 9th week, compared with $14,948,400 for the 10th week. A resume of construction figures for March as compared with February indicates a healthier condition for the building industry. A total of $370,-406,300 in contracts awarded in the thirteen Dodge territories during March was announced, compared with $235,405,100 for February. The March total divided into $101,-337,600 for residential building, $117,346,900 for non-residential and $151,721,800 for public works and utilities.

Although comparisons with March of last year are less optimistic, they do indicate a forward movement in six of the thirteen territories. With the lower construction costs now obtainable, floor space is said to reflect new construction volume with perhaps more accuracy than valuation figures. On a floor space basis, residential contracts exceeded the corresponding quarter of 1930 by more than 2 per cent.



NEW ENGLAND

Progress In Construction Is Slow

SPONSORS and developers seemingly exerted but little effort during the past few weeks towards actually improving the status of the building situation. As in other marts of industry, the plumbing and heating business is gradually casting aside the cloak of depression wherein it has been enshrouded for many months, but still it is acknowledged that the season is not yet ripe for really active work. The gap existing between the comparatively small number of new developments now employing master plumbers' services and the large number of contracts awarded during the first quarter of the year, the major portion of which have not as yet been incepted, has created in the minds of those engaged in the industry auspicious, yet restive, sentiments. The engagement of contractors on commercial and industrial enterprises was indicative of some amelioration during the past fortnight, and at the same time there was reported more activity in residential construction of the higher grade. Progress in the erection of homes built to sell for $15,000 or less is inconspicuous and to date there is not much indication that this class of construction will feature heavily in the 1931 program.

The majority of wholesalers of plumbing and heating commodities report that their sales are improving in a small way, but that their weekly totals are generally below normal. It is said that estimating departments of both distributors and manufac-

turers continue to be exceptionally actively engaged and, while some of the estimates submitted will shortly result in movements of materials, the larger number are passed to master plumbers for their use in preparing bids for general contractors or for work which has not as yet reached the letting stage.

According to F. W. Dodge Corp., the week ending March 10 showed somewhat of a decline in contract awards, while the following seven days contained that appreciable improvement which has been characteristic of statistics submitted during preceding weeks of the year. For the week ending March 24 building and engineering contracts awarded in the New England states amounted to $4,865,900, compared with the total of $10,067,400 for the corresponding week of 1930, and $6,057,600 as an average of awards for previous weeks in 1931. Awards for the last week of the month aggregated $8,704,400 as compared with $5,722,600 for the corresponding week of 1930 and $5,958,300 average of preceding weeks in this year.

Jobbers are not heavily burdened with stocks, but they are maintaining sufficient assortments to enable them to promptly satisfy their customers' wants. There result only moderate size movements from sources. Enameled ware and pottery manufacturers claim shipments which are satisfactory for the season of the year. Roughing-in commodities are not particularly active, but makers have ample reserves. Declines in prices effected by makers of cast iron and malleable fittings occasioned a number of wholesalers to augment their inventories, with resulting good dispositions reported by factories. Credit conditions are said to be of improved nature, collections being made a little more freely and the number of frozen accounts being diminished. No difficulties are experienced by wholesalers in obtaining quick deliveries from sources.

The Metal Market

	April 14	Average Feb., 1931	Average Dec., 1930	Average 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.65c	1.65c	1.60c	1.93c
Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.00c	2.05c	2.05c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.25c	2.35c	2.35c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.85c	2.90c	2.90c	3.57c
TIN—				
Straits tin (spot) New York	25.80c			
LEAD—				
E. St. Louis	4.25c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	13½c	Copper, light	6¼c
Block tin pipe	20 c	Heavy copper and wire	7¼c
Brass, light	4 c	Zinc	2 c
Brass, heavy yellow	4½c	Lead, heavy	3⅛c
No. 1 comp. red brass	6½c	Solder joints (close cut)	5½c
Heavy crucible copper	7¼c		

NOTE: Prices are those quoted on Tuesday of this week.

SOUTHEAST

Activity Is Irregular

REPORTS from jobbers and manufacturers' representatives during the past two weeks are to the effect that activity in the plumbing and heating lines were rather irregular. This situation was said to be true of the entire southeast, though conditions in some sections were reported to be some better than in others. Contractors are only moderately engaged in work and are requiring only small quantities of materials. Hence wholesalers are watching their stocks carefully and are only ordering from manufacturers as needs arise. The lull in demand for plumbing and heating goods which has prevailed in this section for several months is now showing some signs of improvement, it is stated. A favorable factor in the early revival of activity is the increase in spring construction. According to advices from the Atlanta building inspector, construction work for Atlanta showed a sizeable increase for the month of March. The March totals were $403,064, as against $282,971 for the month of February. Figures compiled by the Manufacturers' Record show that contracts awarded in the South for the month of March were $68,000,000, as compared with $43,000,000 for February. This increase in construction activity is particularly encouraging, although it will take considerably more such increases before any general quickening in the movement of plumbing and heating goods is felt, according to sellers.

Reports are that while business is spotty at the present, some optimistic signs prevail, such as an increase in the number of inquiries regarding future delivery orders.

The price situation remained unchanged since our last review. Jobbers are in a position to grant prompt filling of orders in all lines.

Soil pipe sales were reported to be in moderate proportions, and this can also be said of wrought iron pipe, steel pipe and plumbers' brass goods. Owing to the warm weather prevailing in the South, the heating lines showed less activity, although there is still some repair and modernization work in progress. Range boilers moved moderately and demand for fittings was not very large.

Residential construction is reported on the increase and several industrial projects are expected to be ready for estimating within a few weeks. Government projects have provided considerable activity in this territory during the first quarter, and reports are that appropriations for this section for near future work will total several millions of dollars.

Manufacturers are granting prompt deliveries into this section on all staple items.

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A survey is being started at once for a 100-mile pipe line for natural gas now being produced in large quantities near Corning, N. Y. The builders of the proposed line are expected to be in the market shortly for a very large pipe tonnage, says "Daily Metal Trade."

PACIFIC COAST

Building Permits Increase

BUSINESS continues to be spotty, with but little, if any, noticeable change in the past fortnight. While building permits for the month of March reflected increased activity all along the Pacific Coast, the total, however, was less than for the same period last year. Construction activity seems to be confined largely to public works and residential work, with activity being more pronounced in the latter group.

Jobbers appear to be operating their establishments so as to satisfactorily take care of the trade's current needs with the least possible operating expense. They are keeping their stocks at a minimum, depending on prompt shipments from manufacturers.

The movement of enameled ware, pottery and plumbers' brass goods from distributors' stocks is not heavy, the trade purchasing these materials only as actual needs arise. Distributors' prices on these commodities are based on present replacement costs and are holding fairly firm.

Steel pipe and wrought iron pipe are moving in a moderate tonnage and distributors are in possession of amp'e working stocks. Distributors' prices on these two commodities vary in the different jobbing centers and are more firm in some sections than in others. Soil pipe and fittings show little, if any, increased activity and sales on these commodities continue to be under the same period for last year, according to reports. Cast iron, screwed, malleable and drainage fittings are moving only in small lots for the trade's immediate requirements or to sort-up stocks.

Water heaters appear to be selling in increased volume, particularly in Northern California, due to the completion of a natural gas line that reaches many cities in that section. This condition has also brought about an increase in the number of inquiries for the heating of old homes.

General Business Conditions*

THE past month has brought no marked change in the business situation. The decline in industrial activity has been halted, and business, aided by seasonal influences, has shown a tendency to expand. Thus far, however, the recovery has been irregular and slow, and the question as to its permanence is still a matter of opinion rather than practical demonstration. This is to be expected at this stage, following so profound a disruption of economic conditions as has occurred all over the world.

Supporting evidence of an improvement in business appears in composite indexes of production and trade, computed to allow for seasonal variation. These, during the past few months, have either ceased to decline or have shown some upturn. While there is no certainty that the decline may not be resumed later on, as was the case after the temporary revival last spring, the prolonged decline that has already taken place, and the low levels to which business has been reduced, make this seem improbable. What appears more probable is that business has now reached the bottom of the valley, the width of which is still indeterminate. Looking back over the events of recent months, it seems unlikely that we shall again experience so calamitous a combination of circumstances as those of the concluding months of 1930.

Unfavorable developments of the month have included a large number of important dividend reductions and omissions, which not only serve as an unpleasant reminder of the heavy decrease in corporate earnings last year, but imply that these companies do not see enough improvement ahead to warrant dipping into surplus to maintain dividends which are not being earned. March tax collections, falling 40 per cent below those of March last year, were a further reminder of the severity of the depression, and mean that the Treasury faces a probable deficit of between $700,000,000 and $800,000,000 at the end of the year, with a possible increase in taxes to follow. Commodity prices have shown an outcropping of renewed softness here and there, while the announcement of the Farm Board that it will not undertake to valorize the 1931 wheat crop, though by no means unexpected, and undoubtedly constructive in the long run as indicating the abandonment of Government interference with the market, has nevertheless revived concern as to the immediate outlook for agriculture. Reflecting these developments, and the general sluggishness of trade revival, the stock market displayed considerable weakness towards the end of the month and prices lost a substantial part of their earlier gains.

Symptoms of Recovery

As opposed to these more or less discouraging aspects of the situation have been a number of favorable developments which are entitled to consideration. Of these, the most important, to our mind, is the improvement in the foreign situation. This has manifested itself in more tranquil political conditions in many disturbed areas, a stronger tone in several of the leading foreign exchanges, a sharp rise in the prices of foreign securities, and the beginnings of a freer international movement of capital. So important do these developments appear that they may easily mark the turning point towards world economic rehabilitation. For a fuller discussion of the foreign situation we refer our readers to later paragraphs of this article.

Other hopeful developments of importance are the broadening out of the bond market, particularly as regards capacity for absorbing new issues, and growing indications of commodity price stabilization. It is true that prices of some commodities have recently shown weakness, but with a few notable exceptions the declines have not been great and most

* From Business Bulletin, National City Bank of New York.

quotations are already so low that they seem hardly likely to go much lower. For all commodities to reach a point of stability at the same time would be a good deal to expect, and the significant thing is that for over a month composite price index curves, both in this country and abroad, have shown a distinct tendency to flatten out.

In short, economic conditions, despite much that is discouraging, display many symptoms characteristic of the early stages of recuperation. It looks as though the low point had been passed, but progress on the upgrade is likely to be slow.

The Leading Industries

Of the different industries, cotton textiles have made the best record, thanks to the curtailment of output practiced over the past year which has cleared out surplus stocks. Industries such as textiles, whose products wear out quickly and have to be replaced, are naturally among the first in line for improvement. According to the Textile Institute, sales of cotton cloths since January 1 have been larger than in any recent year.

Reports from the heavy industries, on the other hand, are less favorable. Automobile production appears to be showing a normal seasonal gain, but the upturn started from so low a level that unless it goes ahead more rapidly in succeeding months than it has thus far the final year's showing will not compare very favorably with that of last year. Of course the year is still young and not much can be said about the automobile industry until more is known about sales during the all important second quarter.

Building operations are showing some seasonal increase, but are running far below the totals of a year ago. Such projects as the new building development in New York City known as "Radio City" for which contracts for 125,000 tons of structural steel were recently awarded, and the program of the Pennsylvania Railroad calling for another 125,000 tons, indicate that the process of rebuilding and expanding our cities and industries has not halted. At the same time, the plentiful supply of most types of building space and the tardiness of the building industry in adjusting itself to a low cost basis makes it improbable that operations will pick up very rapidly in the near future.

Steel mill activity reflects the backwardness in most consuming lines. Present operations are about 57 per cent of capacity, against 74 per cent a year ago at this time, with the trend both as to volume and prices a good deal confused. Structural work continues to contribute materially to mill schedules, the volume of this business running ahead of that a year ago.

The Increasing Burden of Overhead Expense*

BUSINESS firms everywhere are confronted with the necessity for recognizing the increasing importance of overhead expenses. In many lines of manufacturing, for instance, analyses have shown that profit margins have been narrowed by the encroachment of overhead expenses upon earnings while material and labor costs have remained stationary; whereas in other industries in which profit margins have been maintained, there has been a shifting in the relative importance of the various cost elements so that overheads represent an increasingly larger proportion of total costs. The problem is present in all types of business, however, and is not limited to the manufacturing field alone, since, in the field of marketing, the same tendencies are apparent.

The causes for the increasing importance of overheads may be attributed (1) partly to the progressive evolution of business from simple to more complex organizations, and (2) partly to the inability of business management to co-ordinate properly the functioning of a particular plant or industry in harmony with the general economic structure of business.

Under the first group of causes may be included:

(a) Increased use of machinery.

(b) Progress of mechanical invention and scientific research which render old machines and processes obsolete and inadequate.

(c) Tendency to establishment of large organizations.

(d) Demand by consumers for numerous "free" services and accommodations.

(e) Increased cost of government as reflected in higher tax burdens.

In the second group of causes may be included:

(a) Over-expansion of plants through over-ambitious sales programs.

(b) Wasteful utilization of facilities and resources.

(c) Inability to adjust organizations to new conditions.

(d) Failure to establish adequate controls over expenditures and to provide co-ordinated planning.

Brief consideration of these general factors may help to explain why overhead costs are becoming increasingly important in business; and why, in developing adequate control of business activities through cost accounting, they must be kept in mind. It is only through analysis and study of the fundamental services rendered and by appraising properly the value contributed by each factor in overhead expense that control and ultimate reduction of these costs may be attained.

Greater Overhead from Increased Use of Machinery

As the services of labor are supplanted by mechanical processes, and machines are put to do the work formerly performed by human hands, additional fixed capital investments are required. With each addition of buildings, machinery, or equipment to the plant account, certain expenses increase. The value of the investments in fixed assets must be absorbed in product costs by charges for depreciation and obsolescence; the necessity for proper maintenance involves expenses for repairs; the protection of the investment against loss by fire and other contingencies must be assured through the placing of proper insurance coverage; the increased asset value must be included in tax assessments and additional taxes paid. For the cost of one item of labor replaced by a machine, a dozen other costs are substituted. Usually labor costs can be allocated to products without serious difficulty,

* From the Bulletin of the Chamber of Commerce of the United States.

because only one cost element is involved. When labor is replaced by mechanical processes, however, and labor costs are supplanted by a dozen indirect costs, the allocation of these costs to specific products become extremely intricate. Each of the new costs must be analyzed carefully in order that it be distributed equitably in proportion to the value contributed to each class or unit of product.

The result is that with each substitution of mechanical processes for hand methods, the problem of proper cost allocation becomes most involved. Unit costs of product, however, are generally, though not necessarily, reduced.

Overheads Resulting from Obsolescence of Machines and Processes

As inventive genius, through its experimental and research laboratories has placed more efficient machines and processes at the disposal of industry, the problem of obsolescence has assumed greater importance. Old plants have been abandoned in their entirety because improved processes have made operation of such plants unprofitable due to excessive costs of production. The production of many products has been eliminated entirely because science has provided something better.

The rapid progress of invention in lines such as the automobile, radio and cinema industries bears evidence of the problems arising from obsolescence. Machines unsuited for the fabrication of a newer product must give way for improved types.

The cost of the old machines remains, in many instances, as a capital charge. Regardless of the accounting treatment given such a charge, this cost must be recognized in the total costs of production as depreciation, or as a charge against earnings.

Overhead Problems in Consolidations and Mergers of Organizations

Much attention has been directed to the consolidation and merger of organizations for the purpose of effecting economies in operations. Price advantages through quantity purchasing; cost reductions from large-scale production methods; elimination of duplicate plants, inventories, channels of distribution, and administrative functions; and possibilities of more effective advertising, have been advanced as some of the benefits of consolidations.

In many cases, however, the expected economies have not been attained. Economies which have been made in production processes have tended to be offset to some extent by increased expenditures for non-manufacting functions. Selling, advertising, accounting, statistics, research, and other similar activities have become more specialized, and have required larger appropriations. There has been a tendency for these activities to become unwieldy. The inauguration of a greater multiplicity of functions in the form of "service" activities has added further burdens to total costs of doing business. The result has been that the administrative sections of large organizations have become expensive and any economies attained through large-scale production methods have been dissipated through wastes in marketing and office practices.

It is sometimes forgotten that a large-scale enterprise is not necessarily more economical to operate than several small enterprises having a combined capacity equal to the one large unit. Limitations of space prevent detailed discussion of this point, but attention is directed to consideration of generally recognized limitations and disadvantages inherent in large scale organizations, and to a consideration of that principle which economists label "the law of diminishing returns." Recognition must be given to the fact that profits do not necessarily increase in direct relation to increasing volumes of business done.

Overheads Increase with Demands for Services

There is no business in existence today which is not confronted with the problem of rendering services of many kinds for which no direct remuneration is received. As competition has increased, the numbers and types of such services have become multiplied.

Manufacturers have increased the number and nature of warranties given with their products. Installation and repair services have been offered in many instances without adequate recompense for the costs involved. Generous guaranties against defective parts and workmanship have entailed costs far in excess of original estimates. To meet demands for prompt delivery, products have been shipped by express, whereas only freight costs have been considered when setting selling prices. Under pressure of keen competition, discounts and credit terms have been allowed contrary to the dictates of conservative practices.

Gasoline filling stations, banks, department stores, hotels, railroads, and other agencies appealing directly for the patronage of the consuming public have provided innumerable services as incentives toward procuring trade. We expect free air for our tires, water for our radiators and batteries, and expect our windshields washed every time we stop at a filling station to buy gasoline for our cars. When we drive up to a department store we expect a liveried attendant to drive away our car to a parking place provided by the store, and then have the car waiting at the door when we have finished shopping. Our packages must be delivered promptly regardless of their size or value. Our banks must provide us with checkbooks, and with periodic literature regarding business conditions, with advice on investments, with legal counsel, and allow us to overdraw our bank account at will.

In its desire to serve customers effectively, modern business has built up an almost endless array of expensive practices. Overhead expenses have mounted and profit margins have decreased. Yet business has seemed unwilling to curtail the insistent demand for these services. Under the stimulus of an intensely competitive system, individual operators have vied with each other in encouraging trade by providing ingenious and unique types of services, but have disregarded generally the increasing overhead costs incurred, and have not realized that excessive multiplication of services might prove uneconomical. Only as profit margins have narrowed or disappeared has attention been directed to scrutinizing each such service as to its value in contributing to sound business methods.

It is, however, to the credit of American industry that it has made noteworthy progress toward the simplification and standardization of many lines of products. By concentrating production on a small number of products in each line of industry, substantial savings have been made through the more effective utilization of machinery and by the possibility of manufacturing in larger quantities.

Joseph Keller, Fargo, re-elected state president

North Dakota Starts Move for State Plumbing Code

Committee appointed to draft bill for presentation before next session of legislature. Joseph Keller of Fargo is re-elected state president. Speakers warn against too liberal credit extensions

EMPHASIZED as perhaps the most vital need of the plumbing industry in North Dakota, enactment of a state plumbing code for regulation of the trade to safeguard public health was urged in addresses and discussions at the annual convention of the State Association of Master Plumbers of North Dakota, held in Grand Forks, March 17 and 18. A standing code committee will draw up a specific set of proposed laws covering the trade and is expected to present this proposed code to the legislature at the next session two years from now.

Joseph Keller of Fargo was re-elected president and Peter W. Grady of Grand Forks, secretary, at the close of a two-day session during which talks by half a score of experts on the industry's problems were heard. Frank Gallegher of Jamestown was elected vice president to succeed A. N. Hoppert of Wahpeton, while the directors named were Mr. Hoppert, George Casper of Devils Lake and J. J. Tigue of Minot. Fargo was picked for the 1932 convention.

Sharing the limelight with the state code plan and sanitation problems was the credit situation as relating to master plumbers. Speakers warned against too liberal extension of credit by contractors, taking as their keynote the fact that "no man ever went broke because he gave too little credit."

John L. Hulteng, president of the Grand Forks city commission and an active member of the state association, welcomed the delegates at the initial session. He had helped to plan for the convention.

President Urges Strict Credits

The convention keynote was sounded in the opening address of President Keller. Dwelling at length upon city ordinances governing the plumbing trade and urging the setting up of a state code and licensing system, Mr. Keller went on to warn against the extending of credit beyond reasonable terms and amounts.

"City ordinances affecting our trade are mistakenly believed by many to be for the benefit and protection of the plumbers. On the contrary, they are strictly health measures and are under the jurisdiction of the public health department.

"We are looking forward to the time when every journeyman plumber will be required to pass a satisfactory examination before obtaining a license," the president said. "The inability of the customers to tell whether they are receiving the services of a master or journeyman is one of the evils creeping into our industry in these times of keen competition."

Mr. Keller termed unreasonable extension of credit the "greatest single factor contributing to the unhealthy condition of the plumbing and heating contracting business in this state." He mentioned also North Dakota's

mechanics lien law, and a committee later was appointed to draw up a specific contract in which are incorporated the provisions of this law.

Points to Need for State Code

The need for a state code to safeguard public health was again stressed in a later address by A. L. Bavone of Bismarck, state sanitary engineer. Mr. Bavone, who was elected to honorary membership in the association, noted first the rapid advances in the plumbing science in recent years. Regulation, however, he said, is needed particularly in the smaller cities in which no local ordinances affecting installations have been enacted.

"The sewage which a plumbing system carries is potentially dangerous in that it frequently contains disease producing bacteria. Leakage in plumbing systems, therefore, is a menace to health. A further danger is the possibility of insects and vermin entering a house from the drainage system, probably bearing germs of disease."

Health departments, keenly interested in the regulation of plumbing for this reason, have been the prime factors behind any legislation affecting this industry, Mr. Bavone, who is affiliated with the North Dakota state department of public health, explained.

Pointing to the need for state plumbing laws, he said that the department was unable to remedy undesirable conditions in many North Dakota towns because of the lack both of state and local ordinances. "A state code is a simple solution to the present ills and would benefit the trade as well as the public." State licensing of journeyman plumbers and apprentices was termed another needed advance in the North Dakota plumbing trade.

Peter W. Grady, Grand Forks, re-elected state secretary

Concurring in Mr. Bavone's statements, E. D. Barry of Chicago, midwest district representative of the United Association of Journeyman Plumbers and Steamfitters, declared the willingness of the journeyman body to cooperate with the master plumbers in obtaining legislation for regulation of plumbing operations and prevention of what he termed an "encroachment of the public utilities on the plumbing industry."

Discussing a subject which Mr. Keller had touched upon in the opening address, D. R. Thomas of Minneapolis, secretary and attorney for the Central Western Credit association, warned his hearers to limit credit if they would better their financial status.

Benefits accruing to retailers from the Central Western association, which is the credit agency for the plumbing and heating industry in seven midwestern and northwestern states, were listed by the speaker. "The bureau first compels the making of proper contracts and specifications," Mr. Thomas said, "second, necessitates enforcement of collections from the retailers' customers; third, requires the confining of the retailers' operations to their ability and equipment; fourth, insures equality among retailers, giving all an even chance; fifth, relieves the retailer of anxiety and worry over financial matters; and sixth, ultimately eliminates the irresponsible dealers as credit risks, all very desirable features," he added.

Joseph G. Hildebrand, secretary of the Plumbing and Heating Industries Bureau, Chicago, spoke along somewhat the same lines, and declared that the greatest need of the industry is better understanding between branches. "Misunderstandings in regard to problems, rather than economic difficulties, are causing most of the trouble in the plumbing trade.

"Our organization is founded on the belief that with proper relationships between the branches—manufacturer to wholesaler, wholesaler to contractor, contractor to consumer—a great step forward is taken." Turning to another phase of the situation, Mr. Hildebrand said:

"The consuming public is beginning to recognize the fact that the purchase of a plumbing system doesn't mean the buying of a bathtub, since this is only incidental. The position of the master plumber as an installer of equipment never will be discounted in the picture of this industry."

National Director Speaks

Activities of the National Association of Master Plumbers were reviewed by Fred A. Beier of St. Paul, Minn., a director. The outstanding achievements of the organization, he said, are along educational lines and are effected by means of standing committees. The work of the apprentice committee in establishing vocational courses throughout the nation, of the scholarship committee in arranging for scholarships in sanitary engineering, and of the standardization committee in developing a system of uniform regulations, all were discussed.

Mr. Beier also lauded the work of the Plumbing and Heating Industries Bureau. Other speakers at the convention gave talks on topics less intimately concerning the plumbing industry.

Dr. E. F. Riley of Wahpeton, president of the North Dakota State School of Science, discussed "Modern Training Methods in the Plumbing and Heating Industry." The greatest service the state trade and industrial department can perform to the plumbing and heating industry is to give the men already engaged in the industry an opportunity to learn new phases of the trade, he declared.

For the past two years, Dr. Riley said, the department has been experimenting with evening schools to determine what aid could be given plumbers now active, and the courses have proved to be a distinct success. The speaker also described the work of the state school in preparing young men to take the places of retiring tradesmen.

"Air Conditioning and Ventilation" was the topic of an address by Prof. A. W. Gauger, head of the mines division of the University of North Dakota, Grand Forks. An extension of air conditioning so that ultimately even residences will be supplied with manufactured weather was predicted by Prof. Gauger. He noted that as knowledge of the effects of atmospheric conditions on human health and comfort become more exact,

there is a growing tendency to control these conditions for the benefit of humanity.

Committees

Seven committees, appointed by President Keller early in the session, gave reports. Members of the nominating committee were Rasmus Lunseth of Grand Forks, C. A. Wiley of Minot and M. M. Sorenson of Fargo; resolutions, Robert Gibb of Fargo and J. J. Tigue of Minot; auditing, George Casper of Devils Lake and W. S. Stevenson of Fargo; transportation, T. J. Garritty of Devils Lake and Otto Wendt of Fargo; publicity, Roy Spriggs and Andrew Pederson of Grand Forks; condolence, Frank Gallegher of Jamestown and A. W. Hoppert of Wahpeton; and credentials, B. J. Craton of Larimore and Peter Braseth of Grand Forks.

Members of committees named by the Grand Forks association to make local preparations for the convention were: Arrangements, Rasmus Lunseth, John L. Hulteng, R. C. Spriggs and Andrew Pederson; reception, Ole Hovick, Harry Helps, Paul Leiberg and Olaf Christianson; and entertainment, A. F. Hulteng, Oscar Lunseth, Roy J. Spriggs and P. A. Braseth.

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Regional Management Conference Presented at Atlantic City

A Regional Management Conference, under the direction of the Plumbing and Heating Industries Bureau, was presented at Atlantic City on March 10 by the same cast which participated in the Philadelphia conference. Approximately 375 persons attended the banquet and meeting, which was held at the Knights of Columbus Home.

David H. Moore of Atlantic City was chairman of the committee in charge of arrangements. He was assisted by Maney J. Feeney, president of the Philadelphia Master Plumbers Association, and C. W. Wanger of Woodward-Wanger Co., Philadelphia.

The principal talks were made by Mr. Wanger, who talked on "The Bureau and Its Services," and by Mr. Feeney, who spoke on "The Conference and the Association." Mr. Wanger was master of ceremonies and made the introductions of the characters and the sketches.

Among those who participated in the program of sketches were: Miss Madeline Walter, of Crane Co.; Miss Mabelle E. Smale, of Fleck Brothers Co.; A. Steven Rodgers, of Hajoca Corp.; E. F. Thies, Standard Sanitary Mfg. Co.; George B. Howell, Fleck Brothers Co.; Frank Dykes, a master plumber of Philadelphia; George H. Lang, Josam Mfg. Co.; Mrs. Olivia Orth Anderson; James A. Dwyer, of Crane Co., and C. W. Wanger.

The conference program was directed by Mrs. Olivia Orth Anderson, of the staff of the Plumbing and Heating Industries Bureau.

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Deister Brothers, master plumbers of Dodge City, Kans., located at 209 West Walnut street for several years, have remodeled their building. A new store front construction has been added, new oak floors have been laid and full basement excavated. A display of plumbing and gas equipment is maintained in the windows and display room. The firm recently used a full page newspaper advertisement, announcing the remodeling of its building.

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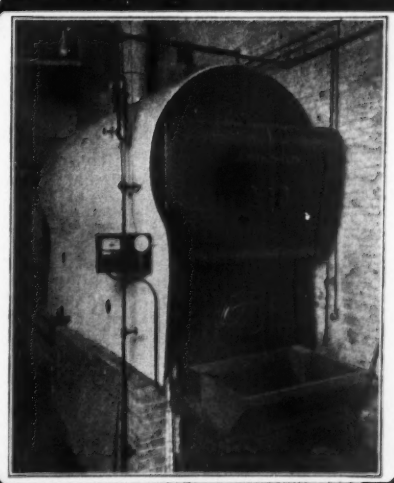


N. G. Watt, Tulsa, newly elected state president

New Law Stops Merchandise Sales of Oklahoma Utilities

Oklahoma master plumbers plan intensive sales efforts as result of favorable legislation. Convention approves Washington, D. C., as site for permanent office. N. G. Watt of Tulsa is elected president. State is re-zoned.

THE legislative program, inaugurated some time ago, was brought to a successful conclusion when it was announced by J. J. Cosgrove, at the 29th annual convention of the Oklahoma State Association of Master Plumbers, that the bill prohibiting public utility companies from merchandising had become a law. The meeting went on record as favoring the new program of credits which has been adopted by the wholesalers of the vicinity, and gave its approval to a permanent national office, to be located at Washington, D. C. The appointment of deputies to assist the zone governors in carrying on their work was sanctioned, and the state was re-zoned along slightly different geographical lines. This year's convention was held at Oklahoma City, April 6 and 7.

The election of officers, which was unanimous in every case, brought the following men into office: N. G. Watt of Tulsa, president; W. J. Casemore of Ponca City, vice-president. William F. Black of Enid was re-elected treasurer. The zone governors for the coming year will be Charles Powell of Blackwell in the Northwest district; Eugene O'Connor of Muskogee in the Northeast; Frank Leslie of Holdenville in the Southeast; and, in the Southwest, S. G. Russell of Oklahoma City was re-elected. With the permission of the convention the president-elect appointed H. L. Mason of Tulsa as secretary. E. H. Radek of Oklahoma City acted as sergeant-at-arms.

The Utilities Bill

The bill, which prohibits public service companies from engaging directly or indirectly in the sale of merchandise not directly connected with the general business of the corporation, puts an end to the unfair advantage which the utilities have had in their merchandising activities in the state. In the words of President Cosgrove, "A plumber may compete with a hardware merchant who sells plumbing fixtures by putting in a line of hardware, but he can scarcely offer to supply the public with

Left to right: H. O. Green, national treasurer, Tulsa; Ross Green, Tulsa; S. G. Russell and J. M. Anderson, both of Oklahoma City, and Walter Duff, Muskogee

water, gas, and electricity in competition with the utility companies, which are selling articles in rivalry with him."

Vice-president Watt remarked that the plumbers of the state have taken on a responsibility, with the passage of this bill, and it will be necessary to make intensive sales efforts in order to adequately fill the place of the utility companies. He advised them to brush up on their sales methods, and to be on the alert for last minute merchandising news.

The convention expressed its appreciation of the tireless efforts of J. J. Cosgrove to obtain the passage of this legislation by a rising vote of thanks.

The New Credit System

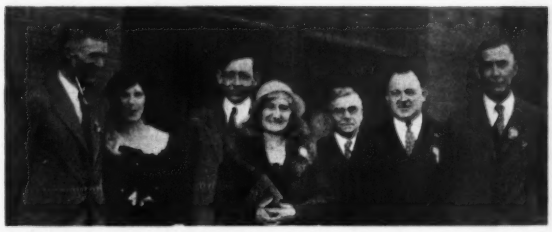
W. C. Green, secretary-manager of the Southwest Credit Bureau, outlined the functions of the bureau, and explained how the new program of credits will operate, and how it will affect the master plumber. The most radical change is the adoption of an automatic "in arrears" policy. This will operate somewhat as follows: Bills for goods purchased in April may be discounted on or before the 10th of May. Such bills are due and payable up to and including the 25th of May, and become interest bearing on June 1st. If not paid by July

Left to right: E. L. Estes, president, E. E. Hardesty, secretary, Edward Peters, vice president and Robert Reid, treasurer, officers of Shawnee local association

1st the contractor's name is automatically transferred to the "in arrears" list.

This innovation, Mr. Green said, will prohibit the wholesaler from using his material to finance the contractor who takes work at a loss. Another effect, he pointed out, will be that the contractor must necessarily cease accepting contracts not properly financed. Or, in other words, it will be essential that he make a thorough credit investigation before accepting a job. And finally it will force the contractor to adequately figure the cost of running his business, the speaker said.

"Overhead," remarked Mr. Green, "is with us all the time. It is so common that few of us realize its real extent. How many of you are charging the price of your business papers and your association dues to your operating cost?" He said it was absolutely essential to success for one to know the cost of operating his business, and that this figure could not be derived by careless, haphazard methods, but must be arrived at in an efficient, businesslike fashion.



Left to right: Mr. and Mrs. R. L. Dennis, Mr. and Mrs. R. R. Books, William F. Black, state treasurer, Thomas Cummings and C. E. DeHaas, all of Enid

W. W. Duff of Muskogee expressed himself as in favor of the new scheme, but questioned as to whether the automatic "in arrears" list will be fair to the "peculiar individual case." W. J. Casemore said that if a business is conducted properly such cases would be extremely rare. He pointed out that the correct and logical place for the contractor to turn for financial aid, in instances where it is necessary, is not to his jobber, but to his bank.

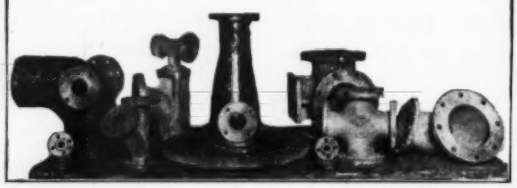
National Treasurer H. O. Green of Tulsa remarked that he strongly approves the program. "It is an arrangement," he said, "which should have been in effect years ago. While it will doubtless be painful to some for a time, I am sure it is to the best interests of the industry." He said it was a poor policy to extend more credit to one's customer than one's source of supply is willing to extend to him, and, under the new program it will be necessary for the contractor to be paid as he must pay. E. L. Freeman of Tulsa agreed with Mr. Green's remarks, saying that the plan would bring about a significant change in the business standards of the industry.

Approve Permanent Office at Washington

Mr. Green, in giving a report of the National board of directors, in which he detailed the changes made in the by-laws and the success of the scholarship fund, informed the convention that the board recommended a permanent national headquarters to be located in Washington, D. C. He enumerated the advantages of a permanent office in general, and the particular advantages of one situated at the nation's capital. He personally recommended that Oklahoma join the ranks of the states which have already approved of Washington as the logical site. On the motion of S. G. Russell of Oklahoma City the convention went on record as favoring a

Left to right: E. M. Rather, Tulsa; C. A. Powell and Elmer Bradford, both of Blackwell; Mr. and Mrs. Charles G. Swann, Oklahoma City; William Maher, Oklahoma City, and Mrs. and Mr. Eugene O'Connor of Muskogee

L.F.C. HIGHEST QUALITY



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permanent national office to be located at Washington.

Mr. Green concluded his report with the information that the fair trade practice commission has received a decision as to the scope of its powers, and that that body is again in operation.

S. G. Russell, in reporting the work accomplished in his zone, recommended the appointment of local deputies, who would act in the capacity of assistants to the zone governors. T. D. Adams agreed with Mr. Russell, stating that in his opinion the territories were too large to be efficiently handled, and suggested that, besides appointing deputies, the state be re-zoned in order to facilitate the work of the governors. H. G. Walker moved that a special committee be appointed to go into this matter. This was done. The committee recommended that the state be re-zoned, and suggested the proper geographical divisions. The committee's report further recommended that four zone governors be elected as heretofore, to meet not later than 30 days following the convention, for the purpose of designating two deputies for each zone, except in the case of the Northwest zone. It was suggested that this zone have three deputies. This report received the approval of the convention, and the committee's recommendations, in the form of a resolution, were put into effect.

J. J. Cosgrove, Oklahoma City, retiring state president

The President's Report

The convention was opened by George M. Flanagan, president of the Oklahoma City association. After the invocation by Newton H. Royer, D.D., there was an address of welcome by J. M. Anderson on behalf of the local association. Dr. W. H. Miles, commissioner of health, welcomed the convention in the absence of Mayor Walter M. Dean. A response was made on behalf of the visiting delegates by H. J. Davis of El Reno. Mrs. J. M. Anderson extended a cordial welcome to the ladies, which was resopnded to by Mrs. E. L. Estes of Shawnee.

President J. J. Cosgrove called the convention to order, and gave a report of his office. He informed the convention that, of the four major projects which had been the program of work for the past year, three had been successfully accomplished, and some progressive work done on the fourth. The four projects were: at-

Left to right: L. H. Scott, Wolverine Brass Works, Oklahoma City; M. A. Nonken, Chandler Pump & Supply Co., Kansas City, Mo., and M. E. Hollis, Standard Sanitary Mfg. Co., Kansas City, Mo.

Left to right: Thomas Rae, American Radiator Co., Oklahoma City; Clyde C. Veach and E. H. Radek, both of Oklahoma City

tending the National convention, and bringing about the election of H. O. Green to the office of National treasurer; revising the constitution and by-laws of the Oklahoma association; securing the passage of an anti-utility merchandising bill; and the passage of a state plumbing code. Of these only the last mentioned remains unfinished.

Mr. Cosgrove said he would like to see a more widespread adoption of the practice of awarding plumbing and heating under separate contracts, and a firm insistence, on the part of the contractors, that all contracts be drawn on the uniform form of contract, as prepared by the American Institute of Architects and endorsed by the National Association of Master Plumbers.

"Without attempting to outline a program for my successor," said Mr. Cosgrove, "I would suggest that during the coming year, organization, merchandising, and credits be stressed. The past year has brought about the greatest change in the business world that many of us have ever witnessed, and we must adopt ourselves to these changes. We may or may not like the new order of things, but, regardless of our feelings, we are face to face with it and must do the best we can. I firmly believe that organization and closer co-operation are our greatest weapons, if we would safeguard our business and future prosperity. I solicit for my successor, whatever his program may be, the same loyalty, help and encouragement that you have given me."

President Cosgrove appointed the following committees: W. W. Duff of Muskogee, E. H. Bradford of Blackwell, and Clyde C. Veach of Oklahoma City made up the credentials committee. The auditing committee was composed of Eugene O'Connor of Muskogee, C. A. Powell of Blackwell, and S. G. Russell of Oklahoma City. The committee on resolutions had for its members John McDonnell of Oklahoma City, H. O. Green of Tulsa, and W. J. Casemore of Ponca City. The

Left to right: Mrs. William Maher, Mrs. James Cosgrove and Mrs. R. L. Patton, state auxiliary treasurer, all of Oklahoma City

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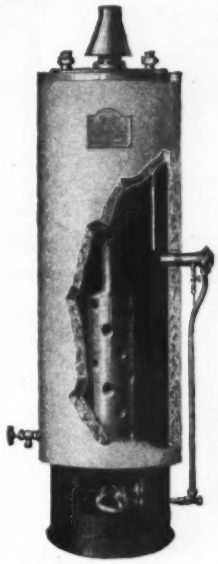
Absolutely NEW and UNIQUE

ENTIRELY new and different design in an efficient, permanent Automatic Hot Water System. Lifetime copper heating element is submerged in vitreous enameled tank. Tests reveal an efficiency never before attained—dependable, continuous supply of clean, hot water assured for the life of the building.



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for either screw or soil pipe connection

Here is a handy, well built shower drain at a low price. The center casting is loose which permits caulking to take in the imperfections of the fixture to which it is fitted. At the same time the flashing if used can be caulked in also.

Weep slots or drainage holes can be furnished if specified. Made in sizes from 1½ in. to 3 in. with various sizes of strainers. Get Blake Testite Shower Drains from your jobber.

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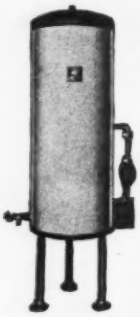

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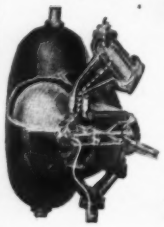

It never forgets the boiler water line

People forget to turn feed water on or off—but this new self-cleaning duplex feeder is built to remember *always*. The self-cleaning feature takes it out of competition. Write today for complete descriptive literature.

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On those remodeling jobs, don't overlook the profit possibilities on the roof. Install Overton Roof Flashings.

Order them from your jobber today for all remodeling as well as new work.

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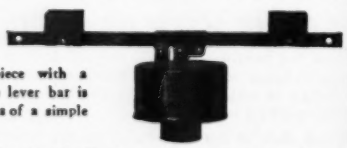
Sylphon No. 23 DAMPER REGULATOR



An all metal masterpiece with a frictionless rocker. The lever bar is easily adjusted by means of a simple clamping unit.

Sell and install Sylphon Damper Regulators. Increase your profits.

Write for Bulletin HD-250

FULTON SYLPHON CO.
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Left to right: J. C. Turner, Peerless-Oklahoma Co., Oklahoma City; Roy Clubb, Elk City, and Ted. Waters, Georgia Supply Co., Oklahoma City

memorial committee was N. G. Watt of Tulsa, H. J. Davis of El Reno and Thomas Adams of Shawnee. The chairman of this group conducted services for J. D. Mann, M. Sullivan, George Manchester and Edward A. Rice, all of Oklahoma City, who have passed away during the past year.

Addresses and Entertainment

S. A. Layton, of the architectural firm of Layton, Hicks and Forsythe, discussed the problems which confront the contractor. He asked the men to take a fair profit for their work, for work well done deserves a reward. He recommended separating general contracting from plumbing and heating, saying that, in his opinion, such a separation is to the best interests of all concerned. "Take as much competition out of your business as possible, and replace it with co-operation," advised Mr. Layton, "you'll find the situation more pleasant and profitable."

Judge D. A. McDougal, of Sapulpa, a member of the state legislature, gave an interesting address on "Legislation and How it Happens." As the man who introduced the utilities bill in the lower house, he was accorded a rising vote of thanks by the delegates.

Other speakers on the program included the Hon. E. B. Howard, former member of Congress, and M.

Left to right: Mrs. K. G. Brandt, Oklahoma City; Mrs. Walter Duff, Muskogee; Mrs. N. G. Watt, Tulsa, and Mrs. B. B. Russell, Oklahoma City

Monroney, president of Oklahoma Retail Furniture Dealers Association.

The annual "Frolic" was the main event of Monday's entertainment, and Tuesday evening was given over to the banquet. The feature entertainers of this affair were the young daughters of Mr. and Mrs. B. B. Russell and Mr. and Mrs. S. G. Russell. During the evening, J. J. Cosgrove was presented with a set of silver goblets as a token of esteem and appreciation.

•

The firm of Wright & Alexander, Rochester, N. Y., has received a contract from the board of education, in that city, for furnishing and installing heating and ventilating equipment in the New Washington Junior high school, on a low bid of $133,343.56.

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

Wants to Be a Licensed Heating Engineer

Editor, DOMESTIC ENGINEERING:—I would like to get some advice on the following problems:

How can a man become a licensed engineer? Who examines applicants and issues the licenses? I see in some business papers advertisements for "licensed heating engineers." The writer was a student in Purdue University for three years but did not graduate. After leaving school in 1922 I have been connected with the plumbing and heating industry. I have made a study of all types of heating and consider myself somewhat of an engineer. Can you give me any information in this regard as I would like to become a licensed heating engineer.

Kentucky. G. K. S., Jr.

Our correspondent has not made himself quite clear as to whether he desires to become a licensed heating engineer on the operating end or on the design end. Every state has its own regulations and laws in regard to licensing and some municipalities have additional requirements. A man who has a license to operate a low-pressure steam plant—where such licenses are necessary—might term himself a "licensed heating engineer" as such plants are used almost invariably for heating. In some states he would be designated as a "low-pressure fireman," as distinguished from a man licensed to operate high pressure boilers and designated as a "high-pressure fireman." The distinction usually is drawn at 15 lb. pressure this being the highest pressure at which boilers may be run and still be included in the low-pressure classification.

Even a high-pressure plant may be operated without a high pressure engineer in some states provided that no power is generated and no steam-driven refrigeration apparatus is used. It is presumable that a person advertising for a position in a business magazine would be looking for an operating job unless he specifically states that he is a designer of heating systems. Many states among which may be mentioned New York, New Jersey and Pennsylvania require that a man carrying on an independent consulting engineering business must have a state license to practice his profession. Such a man if doing only heating work might term himself a "licensed heating engineer." As a matter of fact he probably, at the same time, is licensed to carry on any other branch of engineering design for which he has presented proof of competency (to the state department having jurisdiction) to perform.

In New York State this comes under the heading of "Professional Engineers and Land Surveyors" both of which classes have to secure licenses before they can carry on their livelihood. Other states have different requirements and designations. Some have written examinations, some require the endorsement of two licensed engineers of the applicant's request for a license and a statement that these engineers consider the applicant competent to design engineering work of the character for which the license is desired. Still others require a list of the work in which the applicant has been in absolute control of any portion of the design or installation.

We would suggest to the correspondent that the best way for him to start off would be for him to find a licensed engineer in his own locality and to inquire from him as to just what procedure it was necessary to go through in order to obtain a license; the same party will also be able to give a general idea of the questions to be answered as well as the experience required in order to obtain the license. It is quite possible that heating engineers of both varieties may not require licenses in his state.

◆

More Information About the Heating of Garages

EDITOR, DOMESTIC ENGINEERING:—Having received your letter and sketch with a description of the piping arrangement for heating a garage I want to thank you very much for the information contained. Now I would like to ask if your technical editor would feel that it would be any advantage to put the radiator on the wall and to raise it up some distance above the floor.

Massachusetts. F. W. C.

In the reply previously made to our correspondent three methods of heating his garage were outlined. The first involved running a steam line just below

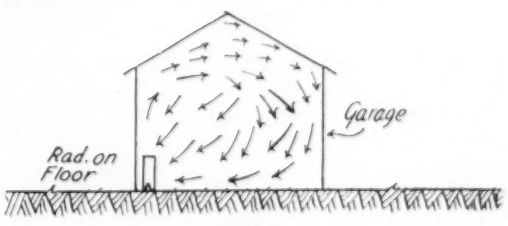


Fig. 1

grade and treating this as a one-pipe gravity steam runout with the condensation draining back against the flow of steam; the second was the use of an indirect hot water heater on his boiler and the running

of hot water supply and return lines over to the garage with a hot water radiator in the garage; the third was the carrying of an overhead steam main to the garage and the running back of a wet return deep under grade with a steam radiator located in the garage.

There would be no advantage in raising the garage radiator as far as circulation is concerned except in the case of the hot water installation where the lifting up of the radiator would give additional height

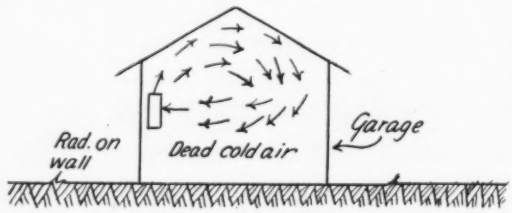


Fig. 2

and circulation head on the hot water lines. On the gravity steam systems it is immaterial whether the radiator is placed on the floor or is hung on the wall as the circulation will be equally good in either location.

Purely from a heating standpoint the results obtained in the garage will be better with the radiator on the floor than they will with the radiator in a raised position. It is well known that radiation placed on the ceiling and high up on walls will not warm down to the floor as well as when placed at a lower level. This readily will be understood by referring to Figs. 1, 2 and 3, where radiators are indicated in the three different positions and the air circulation in each case is approximately indicated. It will be noted that when the radiator is on the floor the air in the entire garage is rotated and therefore assumes a much more equalized temperature than when the radiator is set up on the wall and only the upper portion of the air in the garage is affected.

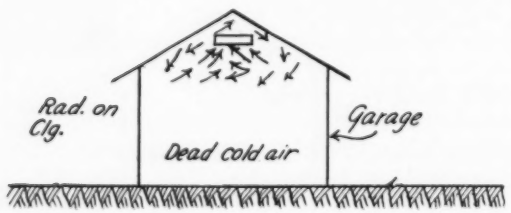


Fig. 3

Of course the worst condition is when the radiator is on the ceiling where only a very small portion of the air immediately under the roof is set in movement. To get the same floor temperature it probably would be necessary to add about 30 per cent to a radiator on the ceiling and about 15 per cent to a radiator on the wall which even then might give a ceiling hotter than necessary and a temperature in the lower part of the garage less than desired.

But our correspondent may have other reasons for asking if it would be advisable to raise the radiator; for example, he may have a garage too narrow to accommodate the radiator at the side without crowding his car and too short to permit entering without the danger of bumping into the radiator. In such an event it is a necessity to put the radiator either up on the wall or on the ceiling so that the question then would become, would it be practical to do so, and the answer is, yes. There is no reason why this cannot be done if the surface of the radiator is suitably increased to compensate for its less efficient location.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of March 21, and the accompanying answer is by a reader:

A steam boiler having a 64-in. water line at present heats a building. It is desired to set on the same floor level another steam boiler with a 52-in. water line alongside of it, connecting to the present steam and return headers. How would you connect them up so that either can be run separately or both together?

How Would You Answer This Question?

Suppose you have to install two laundry trays and an electric washer in a basement where the house sewer comes in 3 ft. above the basement floor. The water pressure is 70 lb. per square inch and there is electricity in the building. How would you install the job so that the discharge will go to the sewer as easily as by gravity?

Answers based upon your experience, and suitable, will be paid for and published in the May 16 issue.

1

THIS question involves an interesting problem which one may encounter almost any day. The main objective is to arrange matters while setting the new steam boiler so that there will be no trouble experienced with the water-lines. It does not matter whether both boilers are run at the same time or one of them is not running, and it does not matter which one may be shut down, the new arrangement will have to work O.K., and above all, the boiler water-lines must remain reasonably steady at their own respective levels.

One of the most recent schemes advanced to take care of the water-line problem in cases of this kind is indicated in Fig. 1. Both boilers being on the same floor level the water-line of the new boiler is 12 inches lower than the water-line of the old boiler. The new connections, however, are made in such a way that the difference between the levels of the two water-lines should not seriously interfere with the operation of the boilers, either one, or both, being fired at the same time. The

steam outlet, or outlets as the case may be, is connected into the old steam header in the usual way. The return main is disconnected from the return header of the old boiler, and is connected to a so-called Hartford Loop arrangement, the return branches from loop to boiler being taken off and connected as shown. This feeds the return, or condensate, along with the make-up water, to both boilers.

On the small boiler we would install a good make of automatic water feeder of a type adapted to the conditions, one of which is that the feeder discharge shall enter the return main end of the Hartford loop, and not directly into the boiler whose water-line controls the

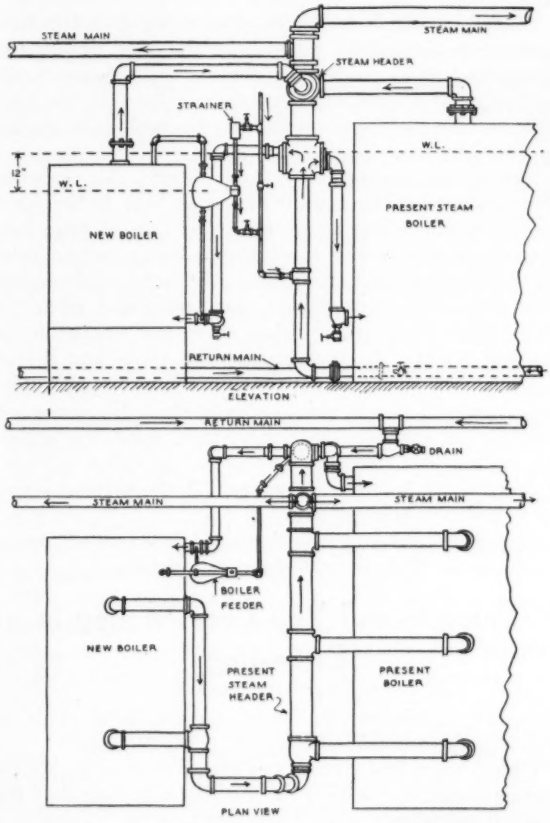


Fig. 1.—Plan view and elevation showing installation of a new steam boiler with a 52-inch water-line set on the same floor level and alongside of an existing 64-inch water-line boiler to furnish additional heating power

feeder. Otherwise the connections are all regular practice.

These boilers can of course be supplied with make-up water by a hand control valve on the water supply line, but the writer prefers an automatic boiler feed connected up with a strainer and by-pass substantially as shown. This will take care of the boilers during regular running service, the water passing through it at such times being a mere trifle. But when the boilers require to be refilled after being blown down or being filled at the beginning of the season the by-pass can be used temporarily to save time.

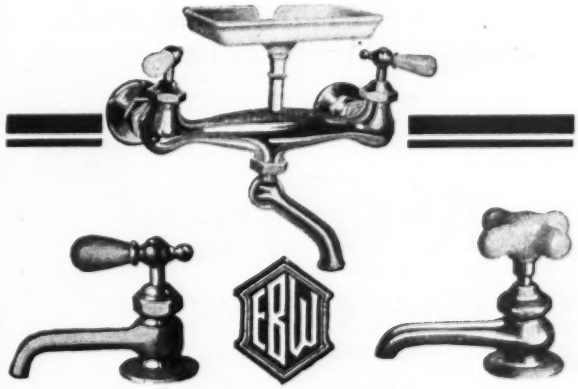
The operation of the outfit is as follows: When both boilers are running they both deliver their steam output into the steam header. The steam mains are supplied

Take the Enterprise Sink Fixture shown below to any housewife and ask her if she likes it. Ask her if she doesn't agree that at last someone has succeeded in putting actual beauty into a faucet.

Take it with you and let the housewife picture it on her own sink. Tell her a little, too, of the life-long operation she may expect from it. Then try to get out without the order!

Enterprise has caught the knack of beauty in plumbing necessities without sacrificing the marked quality of its years of making brass goods.

Ask your jobber to show you the complete Enterprise line.



The Enterprise Brass Works
MUSKEGON .·. MICHIGAN

Figure 271
Acid Proof Bell and Spigot Pipe

The "ENGRAVERS BLUES"

As sung by:

MR. MOST ENGRAVERS

This might well be a theme song dedicated to the engraver who has yet to learn the solution to his plumbing troubles but who only too well knows the disastrous effects of his solutions on ordinary and even highly advertised acid resisting materials.

But cheer up, the solution is easy—Simply specify:

KNIGHT-WARE Acid Proof Chemical Stoneware Pipe and Fittings

KNIGHT-WARE handles Iron Perchloride, Nitric Acid and your other corrosives like "nobody's business," is available in any bore and in any standard or special Fitting that might be required.

We also supply Etching Tanks, Trays, Developing Tanks and any similar equipment that might be needed.

We will be pleased to be of service.

KNIGHT-WARE "IT IS THE BODY ITSELF"

MAURICE A. KNIGHT

145 Settlement Street

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New York City, 804 World Bldg., Beekman 1657 — Chicago, 230 N. Canal St., Franklin 4658 — Philadelphia, 1600 Arch St., Rittenhouse 6300-6301 — St. Louis, 1st Nat'l Life Bldg., Main 1784

San Francisco, Merchants Exchange Bldg., Douglas 375 — Niagara Falls, 309 United Office Bldg., Niagara Falls 507 — Montreal, Que., 1307 Notre Dame St., W., Main 2625

from the top of this header. All condensate from the heating system comes back through the return and rises in the pipe to supply the boilers through the Hartford loop.

The pipe which returns condensate to the present boiler is taken off the loop a few inches below the level of the highest water line, the pipe which feeds the other boiler being taken off the loop at a height level with the highest water-line. Therefore the condensate first flows into the present boiler till its correct water-line has been established. Then it overflows into the new boiler. Thus it may be expected that the water-line will always be practically constant in the present boiler gauge glass.

Should the high boiler be shut down and the new boiler run alone, such as may be the case during the spring and fall months, the arrangement should work perfectly, all condensate then coming back to the new boiler. The water-lines will then be held quite steady by the automatic feeder.

Should the present boiler be run and the new one shut down the condensate will then go back to the present boiler but a waving of the water-line, if any, may overflow a little water into the new boiler and so raise its water-line a little above normal. Some condensation may also come from top of new boiler and from the pipe, which may still further raise the water-line in the idle boiler. In such a case the water-line in the present boiler would be expected to fall correspondingly. But there is a simple and quick remedy. Just draw off some water through the drain valve, until the water-line in the new boiler is an inch or so below normal; then open the by-pass valve, and fill the present boiler up to its correct water-line.

It is the writer's opinion that the job shown will work satisfactorily and answers the question fully.

Guess—and You Lose Money in Estimating

(Continued from Page 58)

rials, and to this we add for the fixtures in all types of buildings 30 per cent of the cost of the fixtures.

Unless there are special appliances such as appear in classes 3 and 4, the sum of the two will represent the cost of the labor.

In the case of class 4 we call to mind a certain gas water heater which costs $1,500.00. If we figured this labor at 30 per cent we would have a cost of $450.00 for the installation and connection of this heater, whereas we know that it can be installed and connected for not to exceed 5 per cent of the cost of the heater, or $75.00. Therefore it is necessary that the estimator take into consideration all of these things when building up an estimate instead of following blindly some plan based on either percentages or days of labor per fixture.

Estimating Labor on Heating Work

In a like manner we find that in estimating the amount of labor required for the installation of heating plants that certain groups have found the following schedules to be in accord with actual costs where fitters are paid at the rate of $10.00 per day for 8 hours and helpers $5.00 per day of 8 hours.

Cost of labor for single pipe steam in apartment or

apartment hotel buildings, over three stories high, fireproof construction, $15.00 per radiator.

Cost of labor for hot water, two-pipe steam, vacuum, vapor or air line system, fire-proof construction, up to 16 stories, inclusive, $18.00 per radiator.

For each story above 16 up to 20 stories, inclusive, $20.00 per radiator, and above 20 stories, $22.00 per radiator.

Cost of labor for single pipe steam, two or three story apartment or hotel building, ordinary construction, or first floor only, fire proof, $9.00 per radiator. For hot water, two pipe steam, vacuum, vapor or air line system, $15.00 per radiator.

Cost of labor for single pipe steam in bungalows, $8.00 per radiator. For hot water, two pipe steam, vacuum, vapor, or air line system, $15.00 per radiator.

Cost of labor for single pipe steam in two or three-story store building with offices or flats above, ordinary construction, $11.00 per radiator; fireproof construction, $14.00 per radiator. For hot water, two pipe steam, vacuum, vapor, or air line system, ordinary construction, $15.00 per radiator; fireproof construction, $17.00 per radiator.

Cost of labor for single pipe steam in apartment or hotel building over three stories and not exceeding sixteen stories, fireproof construction, $12.00 per radiator. Hot water, two pipe steam, vacuum, vapor or air line system, $17.00 per radiator.

Cost of labor for single pipe steam for theaters, churches, garages, factories, warehouses, and one story stores, $18.00 per radiator. Hot water, two pipe steam, vacuum, vapor, or air line system, $22.00 per radiator.

Cost for single pipe steam in residence, ordinary construction, $12.00 per radiator. For hot water, two pipe steam, vacuum, vapor, or air line system, $18.00 per radiator; fireproof construction, single pipe steam, $14.00 per radiator.

For hot water, two pipe steam, vacuum, vapor or air line system, $25.00 per radiator.

Cost of labor for connecting one or more cast iron radiators in tandem, all controlled by one valve, first radiator $18.00 and for each additional radiator $9.00.

Cost of labor for hanging cast iron radiators on walls, 5 cents per sq. ft. On ceiling, 7 cents per sq. ft. (This does not include cost of hangers.)

The foregoing labor costs do not include cross-connections for two or more boilers, or main steam riser on down-feed systems, connections to or handling and erecting hot blast heaters, or steam specialties, such as pumps, heater, engines, or mains outside of the building to be erected, or over-sized pipe for future additional radiation.

Cost of labor and material for 1¼-in. or 1½-in. pipe coils, on walls, 55 cents per sq. ft. radiation; on ceiling, 60 cents per sq. ft. radiation.

Cost of labor and material for 1¼-in. or 1½-in. wrought iron pipe coils, on walls, 80 cents per sq. ft. radiation; on ceiling, 85 cents per sq. ft. radiation.

Cost of labor for cross-connections for two or more boilers, 75 per cent of the cost of pipe and fittings in cross-connections and header.

Cost of setting and connecting condensation and vacuum pumps, $50.00 to $100.00.

Cost of pipe and fittings for average heating plant

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

Paragon Offset Ball Cock
Fig D-511 PAT
FOR tanks with supply close to corner. You don't touch the supply connection when you renew the bronze seat. And the lead refill neither splits nor corrodes. A quality fitting throughout. Write for Folder on complete line.
Through Your Wholesaler
The CENTRAL BRASS Mfg. Co.
PARAGON DIVISION
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BY SPECIFYING Heggie-Simplex Steel Boilers, architects and building committees for many important structures have endorsed what Heggie's 39 years have accomplished—the most modern of heating boilers, in which scientific design combines every essential with preeminent quality.

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JOLIET, ILLINOIS
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The
Packless Radiator Valve
. . . impervious to deterioration, wear or cracking

The Marsh System Unit Radiator Valve is constructed upon principles which have proved to be as sound as they are new. Perfectly adapted to meet the requirements of any vacuum, vapor, steam or forced hot water heating systems. Write for Bulletin No. 150.

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Home Office: 2079 Southport Ave. CHICAGO
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The COLD SPONGE *does the trick!*

THE fight was going badly for Battling McCoy. Things looked pretty glum to his rooters. The seconds started working on him vigorously, with ammonia, and hot rubbing oils, but with little effect. Then his trainer called, "A cold sponge Jake, that always does the trick!" Splosh! Right between the eyes with a sponge. He began to stir—he rose and danced in his corner—the crowds went crazy with excitement!

—That's the story. Here are the characters:

The battered fighter.....Your plumbing business.
His opponent.....Depression and hard times.
The trainer.....Any sales manager.
And the sponge?

Well, that's the big story. TheKaustine Company has placed a sponge in your hand to revive your business. The recent price reduction on septic tanks gives you the greatest "sponge" in the world to pep up that petered-out sales curve of yours.

Lowest Prices Ever Quoted

KAUSTINE prices are now the lowest ever quoted on the most durable, salable septic tanks made. Constructed of Armco Ingot Iron—99-85/100% pure—these tanks at such prices can help to bring a busy, profitable plumbing season to you.

Ask your jobber for the revised prices or use the coupon below, and Kaustine Company will send you complete information.

If it's profitable sales with an extra profit margin, that you need to revive your business—here's the "cold sponge" that will do the trick. Mail the coupon at once—Now!

KAUSTINE CO., INC.

Engineers and manufacturers of sewage disposal equipment

PERRY, NEW YORK

KAUSTINE CO. INC., Perry, N. Y.

Please send me complete information on the lowest prices ever quoted for Kaustine Armco Ingot Iron Septic Tanks.

Name .....

Street Address .....

Town ..... State .....

one pipe jobs, excepting bungalows, with floor and ceiling plates and ordinary hangers included, is 18 cents per sq. ft. of cast iron column radiation, wall radiation or pipe coils (wall or ceiling) radiation installed. Where wrought iron pipe is used instead of steel, 28 cents per sq. ft. of radiation installed, and where air line system is installed, $1.00 per unit additional. Cost of pipe and fittings for bungalows based on steel pipe, 15 cents per sq. ft. of radiation.

A bungalow is a building used as a living abode in which all the heating units are on the first floor.

For covering boilers and breechings with 1½-in. standard grade asbestos, 35 cents per sq. ft. of surface to be covered; where wire lath is used with this covering, an additional cost of 10 cents per sq. ft. of surface to be covered.

Heating plants, 5,000 sq. ft. radiation or under—for covering all the mains, branches and returns on one-pipe steam and all hot water installations with 4-ply air cell, asbestos moulded or wool felt covering, 8 cents per sq. ft. of radiation—risers not included. If any portion of mains, branches and returns is not covered, deduct the proper percentage of covering omitted.

Heating plants, 5,000 sq. ft. radiation or under—for covering all the heating mains, and branches of vacuum and vapor installations with 4-ply air cell, asbestos moulded or wool felt covering, 6 cents per sq. ft. of radiation. (This does not include any of the vacuum vapor return mains, or branches, or supply and return risers.) If any portion of heating mains or branches is not covered, deduct the proper percentage of covering omitted.

For covering all of the vacuum and vapor return mains and branches with 4-ply air cell, asbestos moulded or wool felt covering, 2½ cents per sq. ft. of radiation. If any portion of return mains and branches is not covered, deduct the proper percentage of covering omitted.

For covering steam riser or set of risers for hot water with 4-ply air cell, asbestos moulded or wool felt covering, 2½ cents per sq. ft. of radiation attached to said riser.

In case return riser for vacuum, vapor or air line is to be covered, add an additional cost of 2 cents per sq. ft. of radiation attached to said riser.

For 85 per cent magnesia or asbestos sponge felted covering add 30 per cent to the cost of either A, B, C, or D.

For painting 4-ply asbestos moulded or wool felt covering, add to cost of covering applied, as follows:

	Per Cent
One coat cold water paint	10
Two coats cold water paint	16
One coat of lead and oil	13
Two coats of lead and oil	20

For 85 per cent magnesia or asbestos sponge felted covering, add to cost of covering applied, as follows:

	Per Cent
One coat cold water paint	6
Two coats cold water paint	8
One coat lead and oil	7
Two coats lead and oil	10

Painting or bronzing, 3 cents per sq. ft. of radiation installed. Special color work to match color decorations, 5 cents per sq. ft. of radiation.

What Constitutes a Temporary Radiator

A "temporary" radiator is a radiator connected in any but its permanent position. This means (a) that a

radiator having its permanent connections, but being set on temporary blocks, is a temporary radiator; or (b) that a radiator having its permanent connections, but being temporarily swung out from the wall, is a temporary radiator; and (c) that a radiator connected up with temporary fittings or valves is a temporary radiator.

Cost for installing radiators for the purpose of temporary heat, including connecting, disconnecting and cleaning, is as follows:

$6.00 per radiator for single-pipe steam heating.
$8.00 per radiator for two-pipe steam heating.
$10.00 per radiator for hot water heating.

In closing we have in mind the proposals submitted on a certain job in which the plumbing bids ranged from $4,000.00 to $5,969.00; heating bids from $3,595.00 to $5,425.00; and the combination plumbing and heating bids from $7,595.00 to $10,498.00.

At about the same time, a group of men making a study of estimating and using systematic methods for arriving at their cost, compiled estimates on a number of jobs with variations as follows:

Job No. 1	$3,672.00	to $4,113.00
Job No. 2	$2,074.00	to $2,290.00
Job No. 3	$2,063.00	to $2,207.00
Job No. 4	$1,589.00	to $1,908.00
Job No. 5	$6,452.00	to $6,823.00

All of which tends to prove that there is too much guessing and not enough estimating and with the changes that are in progress, welding, copper and brass piping, unit heaters, quality fixtures, built-in radiation, and numerous other improved and complicated appliances, which must be bought and installed, it is evident that more and more time must be devoted to a study of costs, particularly after installations have been completed so that future sales can be profitable as a result of the experience gained in the first instance and properly filed for use and reference.

The Co-ordination of Heating Plant Equipment

(Continued from Page 45)

of the church members in the oil burner business convinced the building committee that the new boiler should be oil fired. This gentleman's oil burner experience had been limited to residence burners, but he talked with such conviction that the committee gave him an order to install his burner under the new boiler. While the contractor was doubtful about the merits of the burner, he was not in a position to enter a protest against the installation.

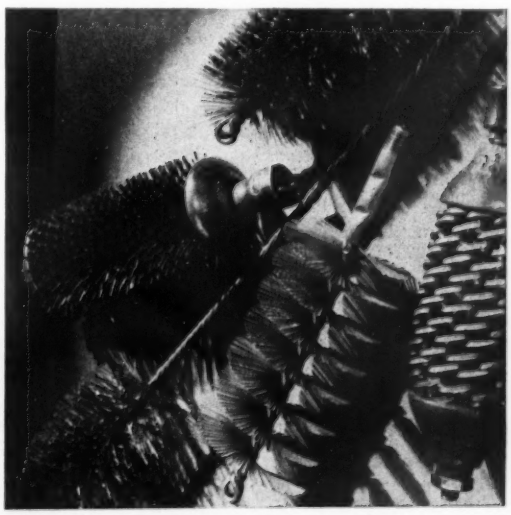
The first cold night proved without a doubt that the burner was much too small for the job. The old boiler, coal fired, had no difficulty in holding two pounds pressure on the main, but as soon as the load was switched to the oil fired boiler the pressure rapidly fell until the whole system was under several inches of vacuum. Our old bug-bear, the induced vacuum, immediately unbalanced the job and prevented the return of condensate to the boiler.

Much adjusting and experimenting failed to remedy the trouble. After several boiler sections were broken on a cold night, the committee finally decided that the contractor did know a little something about heating after all.

You'll Find Me in the Best Hotels and Apartments

My non-kinkable, rustless and sanitary chain has eliminated all objections to the use of plumbing chain—for my glistening, nickel silver beads add a distinctively modern touch to your tubs, trays and lavatories which is in keeping with the newest hotels and apartments.

THE BEAD CHAIN MFG. COMPANY
BRIDGEPORT, CONNECTICUT



TEMPERED steel wire brushes made by Worcester Brush & Scraper Company have long been known as the quality brushes of the industry. Yet they cost no more.

Every brush—and the line is complete—is made in accordance with tried and true design. Every wire in them has passed a rigid inspection. The wires *cannot* come out.

Complete catalog gladly sent on request

WORCESTER BRUSH and SCRAPER CO.
10 Austin Street :: Worcester, Mass.

Woman's Page

It pleases me ever so much when I learn that the different auxiliaries are really benefiting from these editorials that appear at the head of the women's section. Repeatedly, I have asked for suggestions and have offered them.

It would make me very happy to hear from you also telling me whether the subjects covered interest you. Some of those who write tell what they have done to help promote that cooperative spirit which must exist among the members of our industry. Others find these little talks have inspired them into helping the master plumbers and heating contractors.

Suggestions are always welcome!

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New Jersey Executive Board Will Meet April 29

The executive board of the Women's Auxiliary to the New Jersey Master Plumbers' Association will meet at the Robin Hood Inn, Valley road, Clifton, N. J., on April 29 at 3:30 p. m. A large delegation from each of the auxiliaries is expected since this is the last meeting prior to the state convention on May 26 and 27.

The members of the Clifton auxiliary will be hostess at a dinner-dance in the evening, to which all master plumbers, auxiliary members and their friends are invited.

Chicago Group Holds Annual Luncheon

The Women's Auxiliary to the North and West Side Master Plumbers' Pleasure Club of Chicago, held its annual luncheon at the Steuben Club on March 23. Mrs. Robert Liss, retiring president, gave a splendid report of the year's activities, at which time she expressed her thanks to the various committees and to her fellow officers. Mrs. George Matthews presented Mrs. Liss with a gold piece as a token of her faithfulness to the auxiliary.

Officers for the ensuing year were introduced: Mrs. Walter J. Blyth, president; Mrs. Paul Jacoby, vice president; Mrs. C. Jespersen, financial secretary; Mrs. J. Kuhnlein, corresponding secretary, and Mrs. Robert Nelson, treasurer. Mrs. Edith Dwyer, chairman, Mrs. Paul Jacoby and Mrs. C. Baumgarten are given much credit for the arrangements of this party. The afternoon was spent playing cards. Mesdames A. W. Bahn, W. E. Bahn, Blyth, Goldacker, Jespersen, Sauser, Veitz and Wagner carried off honors.

The regular business meeting was held Wednesday, March 28, at the club rooms. Mrs. Blyth appointed her various committees at this time. Cards were played at the close of the meeting, the evening being concluded with refreshments.

April 20 Is Date for Philadelphia Auxiliary's Anniversary Dinner

The Women's Auxiliary of the Master Plumbers' Association of Philadelphia, Pa., has planned its anniversary dinner for April 20 at McCallister's Auditorium, Philadelphia. The arrangements are being made by a committee headed by Mrs. George Hicks. Assisting her are Mrs. Ellis Hendricks, Mrs. Myrtle Stratton, Mrs. James Soehle, Mrs. John F. Seibel, Mrs. Harry L. Stilwell, Mrs. Eugene Quindlen, Mrs. Edward F. Quaid and Mrs. William Beahm.

North Hudson Women Give Final Party

A masquerade given by the Women's Auxiliary to the Master Plumbers' Association of North Hudson, N. J., recently at the Hermitage, Union City, N. J., attended by approximately one hundred couples, marked the close of its series of winter entertainment. Nearly half of those present were in costume and presented a gay sight when at midnight the grand march was played, with Mrs. Edward Wittreich leading as major domo six bandsmen all dressed in red uniforms. Comprising the band were Mrs. Chris Werner, Mrs. Henry Bunker, Jr., Miss Helen

Some of those attending the masquerade dinner given recently by the North Hudson, N. J., Women's Auxiliary

Yost, Mrs. Daniel Thurnau, Mrs. Fred Lang and Mrs. C. Battaglia.

With John J. Corcoran of Jersey City, past president of the New Jersey state association; George Buess, president of the North Hudson association; George Brenner, past president of the Orange association, and Gus Peek, representing Woodward-Wanger Co., Philadelphia, Pa., in Northern New Jersey, acting as judges, the following were selected as among the best costumed: Mrs. Charles Ferri, Fred Lang of Union City, Mrs. A. Rosenart of Jersey City, Mrs. P. D. Butler of Union City, Daniel Thurnau of North Bergen, Henry Bunker, Jr., and Mr. and Mrs. E. P. Ingram of Jersey City.

Shortly after midnight a chicken dinner was served, following which dancing continued. Mrs. William Jacob, who headed the committee, was recovering from an illness and could not attend. Her co-workers in carrying out the arrangements were Mrs. William T. J. Orriss, Mrs. Nicholas Triani, Mrs. Daniel Thurnau and Mrs. M. Markel.

Boston Auxiliary Installs New Officers

The second annual meeting of the Women's Auxiliary to Boston Master Plumbers' Association was held in Egyptian hall, Allston, on the evening of March 10. At the

ATTENTION, AUXILIARY MEMBERS!

A prize is being offered by the Women's Auxiliary, National Association of Master Plumbers, to the state division showing the greatest gain in new members secured up to the time and through the national convention of the Master Plumbers' and Women's Auxiliaries which convenes June 22-25, 1931, *at Milwaukee, Wisc.*

This same offer is made to any local auxiliary where no state division exists, and a prize will be given to the auxiliary securing the greatest number of new members up to and through the national convention.

START NOW!

Gains in new members will be determined on a percentage basis, and the prizes awarded at the final meeting of the Women's Auxiliary, June 26.

In soliciting new members, do not forget the membership clause in your National Women's Auxiliary constitution:

"Article 3, *Section* 1.—*Membership.*

"Those women entitled to membership are wives, mothers, daughters, sisters and nieces of master plumbers who maintain an established place of business, and who are in good standing in the local association, and widows, mothers or daughters of master plumbers who were in good standing with the association at the time of their death, may become members and receive full benefits. The widow may be a member as long as she remains his widow."

State division presidents will see that a copy of this message is sent to each local auxiliary throughout her division.

(Signed) Mrs. W. E. McAndrew, President,
Women's Auxiliary, N. A. M. P.

RAVENA
IRON PIPE FITTINGS
1903~1931
OVER A QUARTER CENTURY OF SERVICE
RAVENA IRON COMPANY
RAVENA N. Y.

36% MATERIAL 60% LABOR 4% PROFIT
40% 51% 9%

How do You Spend Yours?

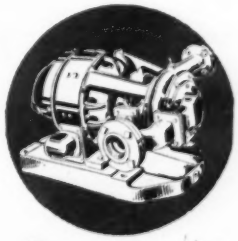
TWO contractors were handed $100 each to install valves on two identical jobs. Any remaining surplus would be theirs.

One decided to save money on materials. So he spent $36 for valves which cost him $60 to install. This left him a profit of $4.

The other decided that good materials would cost less to install so he spent $40 for O-B valves and they cost only $51 to install. This left him a profit of $9. How do you spend yours?

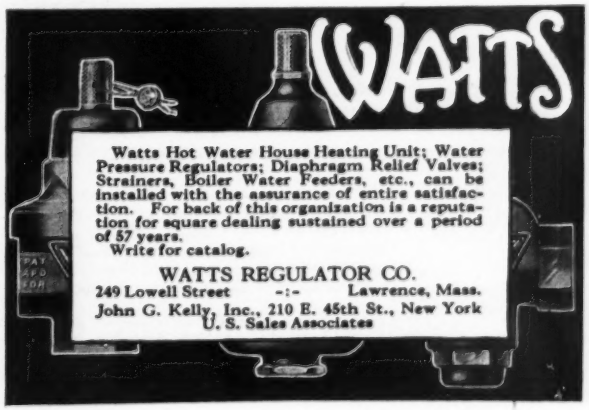
Ohio Brass valves are so designed and machined as to give "an extra profit in the make-up".

Ohio Brass Co.
1189-V Mansfield, Ohio



Jennings Pumps

JENNINGS CENTRIFUGAL PUMPS are furnished in standard sizes with capacities up to 1500 g. p. m. Heads up to 300 ft. Write for Bulletin 128. The Nash Engineering Company, 41 Wilson Rd., South Norwalk, Conn.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Watts Hot Water House Heating Unit; Water Pressure Regulators; Diaphragm Relief Valves; Strainers, Boiler Water Feeders, etc., can be installed with the assurance of entire satisfaction. For back of this organization is a reputation for square dealing sustained over a period of 57 years.
Write for catalog.
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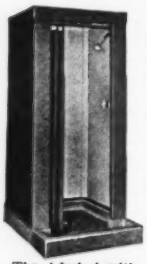
The Plumber's JOB - the Plumber's PROFIT



The Admiral with extended receptor and curtain

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Whether building or remodeling . . . FIAT Shower Bath Compartments and Shower Doors mean double profits for you. Profit on the sale and Profit on the installation.

FIAT Shower Compartments are made in many sizes and designs . . . are of knock-down construction and can be installed on rough or finished floors. Permanent . . . absolutely leak-proof. Easy to install.

Write for full particulars.

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MORE HEAT AT HALF THE COST

—by burning No. 1 Buckwheat Anthracite in a Spencer Magazine Feed Heater.

Write us for the Spencer plan which you can use to build more sales. Spencer Heaters save money for your customers and make money for you.

SPENCER *Magazine Feed* **HEATERS** *for steam, vapor or hot water*

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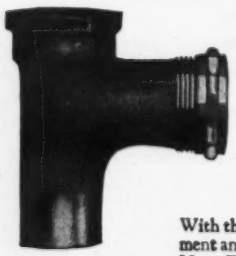

No. 705

AMERICAN VENT TEES

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With the precision that only the most modern equipment and most skilled workmen can attain, American Vent Tees are made. Like all American products, these tees and similar brass goods are made from the highest quality metals. You would do well to change to American now. Order from your jobber.

AMERICAN SANITARY MFG. CO.
Abingdon :: Illinois

Left to right: Mrs. F. E. Trosky, Mrs. Charles Trosky, Mrs. F. E. Wiebke, Mrs. Glenn Petty and Mrs. T. S. Collins, all of Indianapolis

business meeting it was voted to donate the sum of $10 to the Red Cross relief fund.

The following officers were elected for the ensuing year: President, Mrs. Arthur I. Russell; vice-president, Mrs. James A. Cotter; secretary, Miss Annie Rose; treasurer, Mrs. Andrew F. Curtin. Mrs. H. L. Rose, Jr., Mrs. J. Preston Perham, Mrs. P. W. Donoghue, Miss Mary McKenna, Mrs. J. A. Larraway and Mrs. John J. Downey constitute the board of directors. After the election of officers the auxiliary members adjourned to the main hall where installation exercises were held. A goodly number of men were present at this ceremony. Mrs. J. Preston Perham acted as installing officer and fulfilled this duty in a most efficient manner, while Miss Mary McKenna, at the piano, furnished the music. Mrs. James G. Gillespie acted as installing marshall, conducting the outgoing and incoming officers to their respective places.

After the officers were installed, Mrs. Perham asked the retiring president, Mrs. Rose, to come to the platform. P. W. Donoghue of Boston, vice president of the National Association of Master Plumbers, thanked Mrs. Rose for her efforts to make the auxiliary so successful. He also thanked the auxiliary for the great assistance it rendered the Boston association at the time of the National convention in Boston. Mr. Donoghue presented Mrs. Rose with a beautiful electric percolator and sugar and cream set, a gift of the Women's Auxiliary and the members of the Boston association.

Mrs. Russell thanked Mrs. Perham for her assistance and presented her with a bouquet of lovely spring flowers. Ice cream, coffee and home-made cake were served to conclude a delightful evening.

St. Paul Women Plan April Party

The St. Paul, Minn., Women's Auxiliary held its regular monthly meeting on March 12 at the Degree of Honor hall. At the meeting it was decided to give $15 to the scholarship fund. Plans were made for a dance to be given some time in April. After the meeting, cards were played with Mrs. Thomas Shetka and Mrs. W. Steimer sharing honors. Refreshments were served later.

Allentown Auxiliary Elects Officers

At a recent meeting of the Allentown, Pa., Women's Auxiliary, Mrs. Fred Fehl entertained 14 members. During the business session, the following officers were elected for the ensuing year: Mrs. Harry Saeger, president; Mrs. Harry Scholl, vice president; Mrs. Fred Fehl, secretary, and Mrs. William Bortz, treasurer. Mrs. Fehl served frozen fruit salad, toasted sandwiches, candy, nuts, cakes and coffee. Later cards were enjoyed.

Chicago Women Elect New Officers

The Women's Auxiliary to the Chicago Master Steamfitters Association has been holding its meetings regularly on the third Monday of each Month, according to Mrs. Malcolm L. Buckley. At the last meeting, held in March, the election of officers took place. Those selected to direct

the affairs of the auxiliary are: Mrs. T. I. Magan, president; Mrs. F. Hayes, vice president; Mrs. Schroeder, secretary; Mrs. C. Jorgenson, treasurer; Mrs. A. Peterson, social chairman, and Mrs. Ljungren, membership chairman.

Mrs. F. Lamb, retiring president, and Mrs. F. Dilzer, retiring vice president, were elected directors. Mrs. Buckley was given the special privilege of attending all board meetings and continuing indefinitely as a director in view of the fact that she is the founder president.

Both Mrs. F. Lamb and Mrs. F. Dilzer were thanked for the constructive work they did for the auxiliary during their term of office.

Plans for an open party to be held in May are being discussed.

Minneapolis Women to Stage Play

On March 3 the Minneapolis Women's Auxiliary held its monthly meeting at its headquarters in the Lumber Exchange. It was decided to give a play entitled, "Diamonds and Detectives," immediately following Lent.

On March 17 the members of the auxiliary had luncheon at the Abetalaf cafe where bridge and 500 were played. Center pieces of green sweet peas and green candles carried out the St. Patrick atmosphere, while the hostesses wore green carnations. Mesdames H. M. Porter, A. M. Wintheiser, D. E. Norblom, Fred Bartel and Hugo Guntel were hostesses.

The auxiliary members are also collecting magazines for a paper sale. The cast of fourteen for the play, "Diamonds and Detectives," is reporting regularly for rehearsals. While discussing the national convention, several members stated that they would motor to Milwaukee.

New Brunswick Auxiliary Hold Card Parties

The New Brunswick, N. J., Women's Auxiliary has been holding a series of bridge parties during the winter season. One of these was held at the Hotel Woodrow Wilson and was very well attended. Mrs. Frank Smith of New Brunswick recently entertained the auxiliary at another bridge party at her home. The next was scheduled to be held at the home of Mrs. Harry A. Richardson, 14 Llewellyn place, on April 7.

North Shore Auxiliary Welcomes New Member

The Women's Auxiliary to the North Shore Plumbing Contractors' Association of Chicago, was entertained by its new president, Mrs. N. J. Mergenthaler on March 19 at her home in Evanston, Ill. A most delicious luncheon was served. The members were glad to welcome into the auxiliary a new member, Mrs. A. J. Butow of Evanston. After the lunch the business meeting was held. Later, bridge and bunco were played, honors in bridge going to Mrs. Flader, Mrs. Killian and Mrs. Steffens, while Mrs. Butow and Mrs. Hagen carried off the honors at bunco.

Left to right: Mrs. Cora Thistle, Auburn; Mrs. H. J. Parent, Lewiston, vice president Maine state auxiliary; Mrs. Iver Iverson and Mrs. George Scribner, both of Portland. Photo taken at recent convention of Maine state auxiliary, held at Lewiston

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When you install this valve the full profit is yours. No return calls for servicing. The Mason Domestic Water Reducing Valve functions perfectly from the time you install it until the end of its long span of life.
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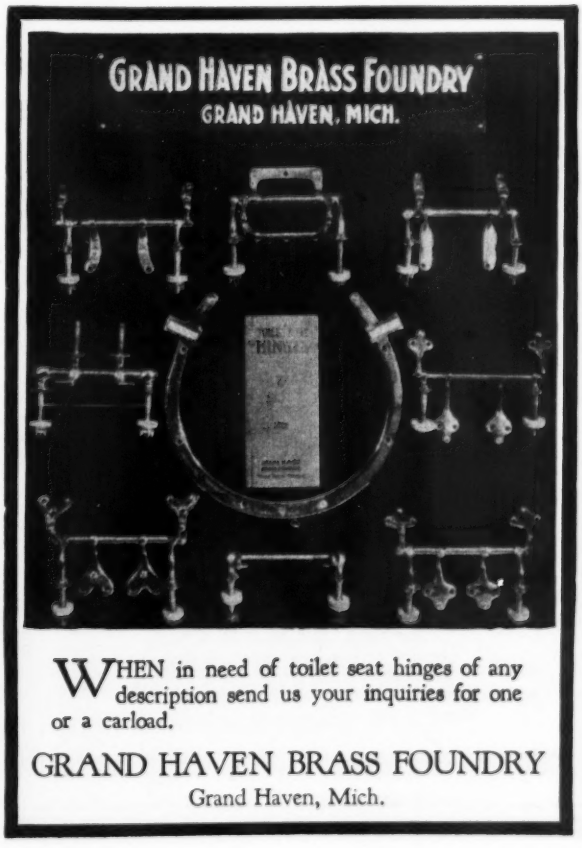
Canadian Office
686 Notre Dame St. W., Montreal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GRAND HAVEN, MICH.
WHEN in need of toilet seat hinges of any description send us your inquiries for one or a carload.
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Grand Haven, Mich.

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Plumbing & Heating Contracting and Merchandising

1900 Prairie Ave. ⟍ Chicago, Ill.

New Trade Literature

Circular of American Radiator Co.

American Radiator Co., New York City, department of gas utilization, has prepared a circular describing its automatic gas fired, hot water heating system especially designed for small dwellings and business buildings, particularly of the cellarless type. An installation diagram illustrates the method of circulation and, in addition to operating costs, automatic hot water supply figures are given with a typical hook-up. Ratings and dimensions data are given along with tables of water heating capacities.

"Conditioning the Air"

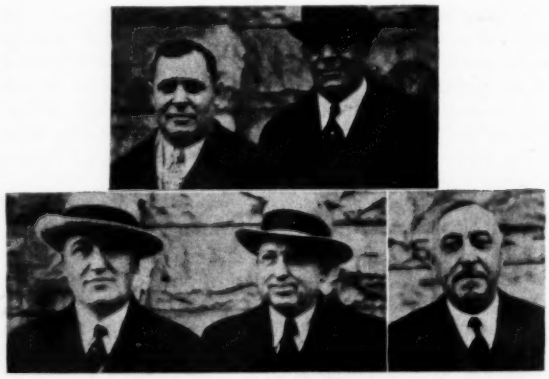
"Conditioning the Air" is the title of an attractive little booklet which has just been released by the Lewis Corp., Minneapolis, Minn., manufacturers of air conditioners, describing its products and their uses.

Booklet of N. C. Davison Gas Burner & Welding Co.

The N. C. Davison Gas Burner and Welding Co., Pittsburgh, Pa., has issued a 24-page booklet describing the products of its manufacture. Each page is illustrated with drawings and pictures of products, containing as well descriptive matter. **The company has also issued Bulletins** 220 and 223, which deal with the blowers and domestic gas burners of its manufacture.

"Standard Manual on Pipe Welding"

In response to a need as expressed by a demand for an authoritative treatment of standard pipe welding practice, from architects, engineers, heating contractors, and journeyman fitters, as well as for instructional material to be used in the training of journeyman fitters and apprentices, the Heating and Piping Contractors National



Top picture: H. P. Molter and B. J. Brewer, both of F. R. Dengel Co., Milwaukee. Bottom row: R. E. Moore and C. E. Pullum, both of Bell & Gossett Co., Chicago, and Edw. Dillman, Hoffmann & Billings Mfg. Co., Milwaukee

Association has prepared and recently published a "Standard Manual on Pipe Welding." The book contains a comprehensive and thorough treatment of reliable and up-to-date standards, practices and theory in pipe welding. It consists of 280 pages, with 101 illustrations, and is bound in flexible fabrikoid cover.

Material is made available in this volume which will meet the needs of every one interested in pipe welding, from the engineer to the apprentice. The best engineering and mechanical ability and talent available in both the heating and welding industries have been drawn upon in the preparation of this manual. The price of the book is $5.00 per copy, and it can be obtained from the Heating and Piping Contractors National Association, 50 Union Square, East, New York City.

Business Changes

Chicago, Ill.—The Alcock Plumbing Co., 1927 South Wabash avenue, has announced that C. E. Bishop has severed his connection with that company. Charles W. Alcock and Charles W. Alcock, Jr., continue as owners.

Pittsburgh, Pa.—George B. Stewart Co., plumbing and heating contracting firm, has moved its offices from 6310 Penn avenue to 5960 Baum boulevard.

Eugene, Ore.—Edwin J. Yenn and J. E. Kilborn, who have been engaged in the plumbing and heating business together in this city, have dissolved partnership.

Saranac Lake, N. Y.—The firm of Davidson and Miller, plumbing engineers and contractors, established in 1915, has been taken over by Edward Boon and Phillip Sullivan, who plan to continue its operation. The new owners have been connected with the firm for nine and six years, respectively.

Portland, Ore.—A. J. Matot has retired from the Oregon Plumbing & Heating Co., and Herman C. Flatan will continue the business under the same name.

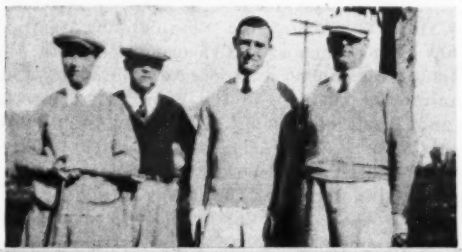
New Business Ventures

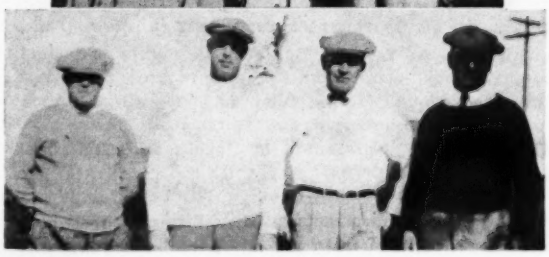
Grand Rapids, Mich.—The Denison-Dykema Co., 666 Wealthy street, S. E., has incorporated its plumbing, heating and hardware business, under the same name, with a capital of $25,000, of which all was subscribed and paid in property.

Rochester, N. Y.—The heating and plumbing firm of Broadman and Markwitz, Inc., has been incorporated with a capital of $20,000. The incorporators are Ralph Broadman, 75 Vienna street, and Michael Markwitz, 1161 St. Paul street.

Hoboken, N. J.—With a capital of $10,000, the firm of August T. Pflugh and Sons, Inc., has been incorporated to establish and operate a plumbing engineering and contracting business. The new concern is represented by D. J. Marrone, local attorney.

Newark, N. J.—The H. and H. Engineering Company has been organized and incorporated with a capital of





Top picture, left to right: W. Turner, D. Turner, C. F. Ceasar and H. Brown. Lower picture: F. M. Gabbert, C. C. Anderson, J. J. McLeod and H. H. Hoopes. Photos taken at the golf tournament of the Plumbing and Heating Club of San Francisco, held recently at the Ingleside course

IMPROVED "WILHELMI" COPPER RANGE BOILERS

Only the finest of materials and workmanship go into the Improved "Wilhelmi" Boiler. ¶ That is why hundreds of Contractors have standardized on them. ¶ You, too, can have the assurance of quality these fine copper boilers give.

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Paterson " " New Jersey

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MISS ANNABEL HODGES
139 DALZELL STREET
SHREVEPORT, LOUISIANA

has been awarded the grand prize of $100 for the best series of six inserts entered in the coloring contest conducted by The Dole Valve Company, 1923 Carroll Ave., Chicago.

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For All Lead Work

SOLDERING SALTS

Carry Yager's with you on every repair job. It will enable you to do better work in half the time.

Buy it in lots of half a dozen so you'll have it on hand when you need it in a hurry.

Send for sample

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Every deep well pump or water system installation requires a cylinder. As a matter of satisfaction and security it is easy to safeguard your customers and protect your own business by selling Myers Cylinders. Quality built, full size, full weight, full capacity, in all standard styles and sizes, they can be sold with confidence. If you are a pump or water system dealer it will pay you to investigate this splendid line of cylinders. Catalog on request.

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Sprinkler System installations should and will be profitable if you insist on C. S. B. Sprinkler Heads.

Make this your Sprinkler Head headquarters. ALL orders filled promptly.

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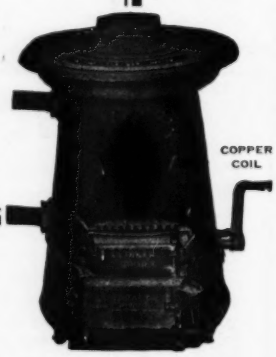
Do your customers know how easy it is to have hot water with CLE-BAR? If not, you've a wonderful sales story that will turn in plenty of profits.

The Copper Coils of the Cle-Bar allow for quick heat at low fuel cost. Cle-Bar efficiency means no bother, no costly breakdowns.

Write for full details.



The Perfect Hot Water Supply

CLEGHORN COMPANY 86 BROAD ST. BOSTON, MASS.

$100,000, to establish and operate a plumbing and heating engineering and contracting business. M. J. Quigley, local attorney, represents the new firm.

Brooklyn, N. Y.—The firm of Jokatz, Inc., has been chartered, with a capital of $5,000, to establish and operate a plumbing engineering and contracting business. The new concern is represented by L. H. Supnick, 26 Court street.

Buffalo, N. Y.—Fred N. Jones and associates have organized and incorporated the firm of Fred N. Jones, Inc., with a capital of $5,000, to establish and operate a plumbing, engineering and contracting business. The new concern is represented by the local law firm of Moot, Sprague, Brownell, Marcy and Carr.

Buffalo, N. Y.—With a capital of $20,000, Henry M. Dechert and associates have chartered the firm of Henry M. Dechert, Inc., to establish and operate a plumbing, engineering and contracting business. R. A. Grimm, local attorney, represents the new concern.

New York City—The Rudolf Plumbing and Heating Corp. has been chartered, with a capital of $20,000, to establish and operate a plumbing and heating engineering and contracting business in the Bronx. The new concern is represented by M. Steit, 261 Broadway.

Summit, N. J.—The Smith Plumbing and Heating Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating engineering and contracting business. The local law firm of Pizzi and Pizzi represents the new company.

Avon, N. J.—The Coast Plumbing and Heating Corporation has been chartered, with a capital of $25,000, to establish and operate a plumbing and heating engineering and contracting business. The new concern is represented by D. W. Willguss, Red Bank, N. J.

Newark, N. J.—With a capital of $50,000, the John D. Lee Company has been organized and incorporated, by John D. Lee and associates, to establish and operate a heating engineering and contracting business. The local law firm of Eppston and Eppston represents the concern.

New York, N. Y.—With a capital of $10,000, the Hering Heating Company has been organized and incorporated, to establish and operate a heating contracting and engineering business in Manhattan. The new firm is represented by S. Schneiderman, 521 Fifth avenue.

New York City—The Elton Plumbing and Heating Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating contracting business in the Bronx. The law firm of Pizzi and Pizzi, of Summit, N. J., represents the new concern.

Brooklyn, N. Y.—Joseph Ballan and associates have organized and incorporated the Ballan Plumbing and Heating Company, with a capital of $1,000, to establish and operate a plumbing and heating contracting business. L. Rosenberg, 50 Court street, represents the new firm.

Brooklyn, N. Y.—The Bohleber Plumbing and Heating Company has been organized and incorporated, with a capital of $5,000, to establish and operate a plumbing and heating engineering and contracting business. The new concern is represented by Jacobs and Nadell, 1305 Forty-sixth street.

New York City—The Century Heating Company has been organized and incorporated, with a capital of $5,000, to establish and operate a heating engineering and contracting business. J. Komito, 153 Centre street, represents the new firm.

Los Angeles, Calif.—The Jacot Plumbing Co. has engaged in business at 4230 South Arlington avenue, under the management of Charles L. Jacot.

Pipe —— Lines
Connected by LYT

NOT UNDER A. A. U. RULES

A widower was about to be married for the third time; and his bride had been married once before. The groom-elect wrote across the bottom of an invitation to a friend:

"Be sure to come. This is no amateur performance."

The man who makes an ash tray out of a rug, says the editor of Leighton's "Gloom Chaser," is not necessarily a magician.

A MATTER OF ACCURACY

Little Ethel: "Mother, are you the nearest relative I've got?"

Her Mother: "Yes, dear; and your father is the closest."

ANOTHER RADIO RECIPE

"Hands on hips. Place one cup of flour on shoulders. Raise knees, depress toes and wash roughly in one cup of milk. In four counts raise and lower legs, and wash two hard boiled eggs in a sieve. Repeat six times. Inhale one teaspoon baking powder, one cup flour, and then breathe naturally. Exhale and sift. Arms forward, over head raise the cooked eggs in flour, and in four counts make stiff dough, which is stretched at the waist. Lie flat in flour and roll into marbles the size of walnuts. Hop to position in boiling water, but do not boil at a gallop. After ten minutes, remove and wipe with a dry towel. Breathe naturally, dress in warm flannels, and serve with fish soup."

SOME PEOPLE CAN'T BE SATISFIED

It was midnight in a hotel in a little Texas town when a guest rushed from his room and shouted for the proprietor.

"Hey!" he complained, "there are a couple of rats fighting in this room of mine."

The proprietor wasn't a bit excited.

"What room have you?" he drawled.

The guest reported the number.

"And you're paying a dollar and a half for it, ain't you?" came the drawl again.

"Yeah."

"Well, what do you expect for a dollar and a half, anyway —a bull fight?"

KABLEGRAMS

EPITAPH

Hortense Margee is hard to stop,
She lit a match—the tank went "pop!"
A smile lit up her angel face,
She's touring now through starry space.

A DIFFICULT PROBLEM SETTLED

A young man, recently married, was saying to a friend: "I'm a bit in doubt as to what to call my mother-in-law. You see, my own mother is living, and it doesn't seem right to me to call my wife's mother, 'Mother.'"

"That's easy," the friend replied. "I was up against the same thing. The first year I addressed her as 'Say'; after that I called her 'Grandma.'"

PROOF

A stout woman on the scale was eagerly watched by two small boys.

The woman dropped in her cent, but the machine was out of order and only registered seventy pounds.

"Good night, Bill," gasped one of the youngsters. "She's hollow!"

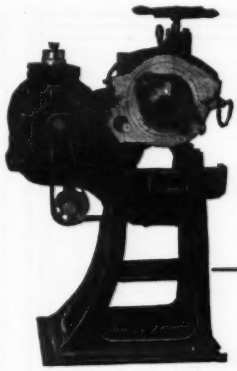
THEY'RE EDUCATED THESE DAYS

The teacher was testing the knowledge of the kindergarten class. Slapping a half dollar on the desk, she said sharply, "What is that?"

Instantly a voice from the back row: "Tails!"

Now, at almost pre-war levels: Stock prices, commodity prices, and women's dresses.

L Y T



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Pipe Threading Machine

Why not let us show you how easily you can own the Curtis Pipe Threading Machine?
Our purchase Plan has helped hundreds of Contractors get new equipment. Why struggle along with that old worn out machine when you can afford the Curtis NOW?

Write us for full details TODAY!

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PIPE COVERING
Gives LIFETIME Protection

With Ozite Pipe Covering, cold water pipe lines are permanently protected against freezing. Condensation is prevented. This economical material is made entirely from virtually ever-lasting, sterilized cattle hair. It is easily cut and applied. Write today for free sample.

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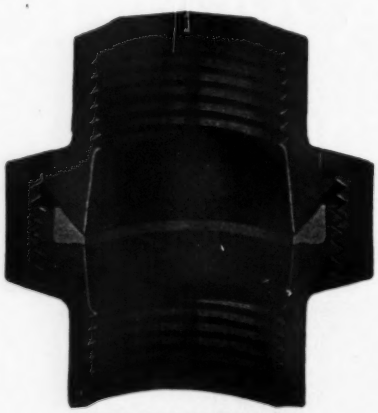
Merchandise Mart • • Chicago

IMICO UNIONS



NOTE THE BRASS DISC

Made of refined Malleable Iron with Brass Seat inserted in place by powerful pressure so that it cannot become detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
Manufacturers Full Line Iron Pipe Fittings

Bath a Day Movement

Some time ago we referred to the fact that a copy of "The Story of the Bath," which O. H. Krueger of the Krueger Plumbing and Heating Co., Ft. Collins, Colo., had given at a local meeting, had turned up in the hands of a visiting nurse in another state several hundred miles towards the east. We wrote Mr. Krueger to acquaint him with this fact, and his reply, we feel, sums up in a better way than we can, just how the industry ought to feel about this little booklet, which has done so much to put the contractor in the right light. We quote Mr. Krueger's letter below.

177

"The incident you mention of 'The Story of the Bath,'" he wrote, "is indeed interesting and goes to show again that this world is not so large after all. I hope the day will come when the plumbing fraternity throughout our country will get behind this and other publications which are ours to use in fostering a better understanding between us and the general public."

Here is a man who is on the firing line daily. He used the booklet to follow up an address delivered at his local Rotary club. Each member attending that meeting was handed a copy of the booklet. A great many contractors have used this method of getting information before the public. If you want details, write us. We'll send you a copy of the booklet without charge, and give you full information.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Don't try to unlock a door with a keystone.

• • •

The softer the road the harder it is to travel.

• • •

The closed mouth catches no insects.

• • •

Bellowing cattle are herd on the ranch.

• • •

A man kicks more from habit than from necessity.

• • •

Nothing pleases a loafer more than to annoy a busy man.

• • •

Don't make fun of a fool unless you are in the same boat.

• • •

When an orator goes to prison he acquires a poor address.

• • •

When some men do you a little favor they expect a due bill for it.

• • •

If a man is in the right he doesn't have to get mad about it.

• • •

Don't think every solid man you meet is a hard character.

• • •

The monocle and its wearer make a pair of spectacles.

• • •

It's a poor writer that escapes criticism.

PATENTS

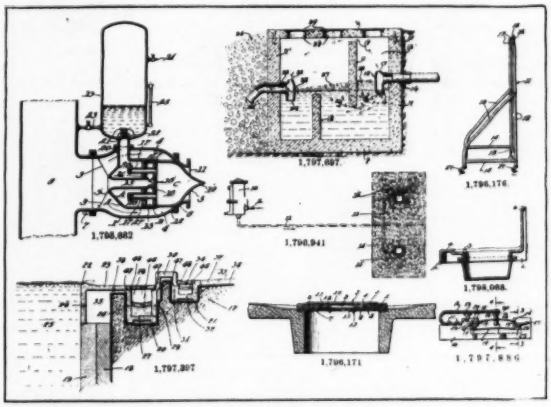
Plumbing Department

1,795,662. Pressure-Relief Valve. Leslie N. McClellan, Phillip A. Kinzie, John L. Savage, and Charles M. Day, Denver, Colo., assignors to Universal Hydraulic Corporation, Denver, Colo., a Corporation of Colorado.

1,797,697. Septic Tank. Cecil H. Rymal, Chicago, Ill. assignor of one-half to George R. Gregory, Chicago, Ill.

1,796,176. Plumbing-Fixture-Display Stand. Otto Witzleb, Dixon, Ill.

1,796,941. Sprinkler System. Francis M. Pottenger, Jr., Monrovia, Calif.



1,797,068. Sanitary Fit-On Kitchen-Sink Back and Top Cover. Emma Dahms and Fred A. Dahms, Toledo, Ohio.

1,797,397. Swimming-Pool Construction. John Francis Booraem, Greenwich, Conn., and Robert Morris Sutphen, Newark, N. J.; said Stuphen assignor to said Booraem.

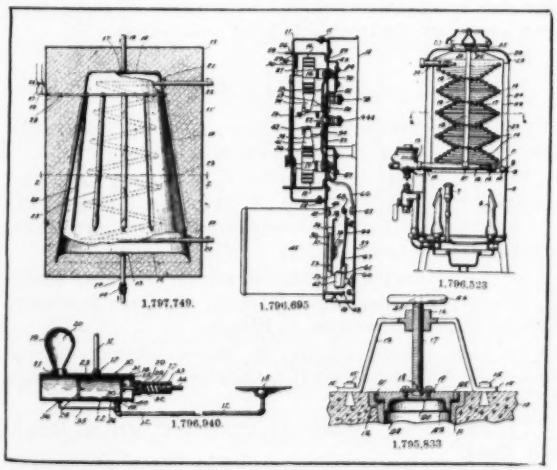
1,796,171. Plug for Sinks. Herbert A. Trotman, North San Diego, Calif.

1,797,886. Electric Thermostat. Adolph A. Thomas, New York, N. Y.

1,797,749. Water Heater. Thomas B. Allardice, Mountain Lakes, N. J.

1,796,695. Day and Night Thermostat. Lawrence R. Teeple, Portland, Ore.

1,796,523. Water Heater. Ernest J. Horton, Pittsburgh, Pa., assignor to Ruud Manufacturing Company, a Corporation of Pennsylvania.



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Modern, automatic gas fired forced warm air equipment for buildings and spaces of every character.

Unequalled opportunity for the live heating-sales firm.

Write Us Today!

REZNOR MANUFACTURING CO.
MERCER, PENNSYLVANIA

ROBERTSHAW THERMOSTATS

For authentic advice on your temperature control problems, write the Robertshaw Thermostat Company, Youngwood, Penna.

MONARCH Cellar Drainer

A New All Bronze Cellar or Sump Pump of Advanced Design

Submerged centrifugal type. Always primed. Stainless steel impeller shaft equipped with Parock bearing. Total weight 48 pounds. Built to conform to the Monarch standard of excellence. Priced to meet all competition.

Write today for full particulars on this, and other profit-making items on the Monarch line.

THE MONARCH ENGINEERING CO.
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GET THE FACTS — THEN ACT

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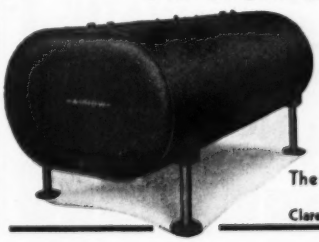


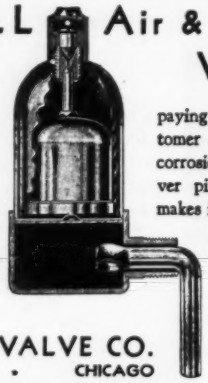
Regardless of what make of tanks you buy we suggest you first read our Guarantee covering

Arrow KopaLoy Metal Tanks

Ask for Bulletin 0-231.

The NOVELTY STEAM BOILER WORKS Company
Clare and Kloman Sts. Baltimore, Maryland

VENTWELL Air & Vacuum Valves



Ventwell Valve construction which includes drawn metal through entire body, prevents the usual twisting or breaking of shanks in installing.

Another Ventwell construction feature that is paying big returns in customer satisfaction is the corrosion-proof nickel silver pin, a feature that makes it possible to guarantee Ventwells for five years.

Low priced, complete line, attractive discounts. Write today.

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The Best Brass Fittings that Experience, Modern Machinery, Rigid Inspections and Conscientious Effort Can Produce
Acheson Mfg Co
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INSIDE EACH FITTING
THE DEPENDABLE LINE
For The Jobber To Handle
And The Plumber To Use

GENUINE NASON STEAM TRAPS
UPKEEP
KEEP DOWN

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71 FULTON ST. NEW YORK NY.
Steam Specialty Specialists Since 1841

WRITE NOW For NEW Bulletin:
"HOW YOU CAN SELL MORE WATER SUPPLY SYSTEMS"
HOOSIER
FLINT & WALLING MFG. CO.
76 OAK STREET, KENDALLVILLE, INDIANA

1,796,940. Sprinkling System. Francis M. Pottenger, Jr., Monrovia, Calif.

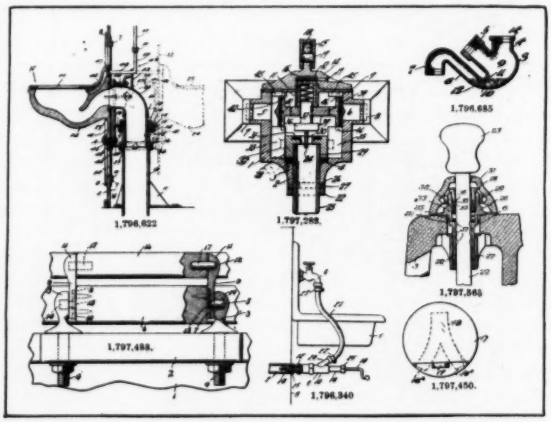
1,795,833. Cellar Drain. Luke Cakmo, Chicago, Ill.

1,796,622. Toilet Fixture. Arthur F. Riedinger, St. Louis, Mo.

1,797,283. Faucet. John F. Bentley, Detroit, Mich.

1,796,685. Antisiphon Trap for Draining Systems. Henry Edelman, Philadelphia, Pa.

1,977,563. Catch for Plumbing-Fixture Waste Stems. Roy H. Zinkil and Otto C. Osterhage, Chicago, Ill., assignors to Crane Co., Chicago, Ill., a Corporation of Illinois.



1,797,488. Toilet-Seat Hinge. Henry Von Phul, Grand Haven, Mich., assignor to American Brass Novelty Co., Grand Haven, Mich, a Corporation of Michigan.

1,796,340. Waste-Pipe Cleaner. Alfred Nowakowski, Milwaukee, Wis.

1,797,450. Water-Trap Air-Eliminating Closet Box. John R. Smith, Los Angeles, Calif.

1,797,124. Soldering Flux. Dana W. Bowers, Lansdale, Pa., assignor of forty-nine one-hundredths to Charles T. Asbury, Philadelphia, Pa. A soldering flux comprising beeswax 6 parts to 10 parts, oleic acid 25 parts to 40 parts, silver oxide 1 part to 3 parts, and finely granulated solder, the solder being present in a proportion about equal to the other ingredients.

1,797,357. Chromium Plating. John F. K. McCullough and Benjamin W. Gilchrist, Detroit, Mich., assignors to Ternstedt Manufacturing Company, Detroit, Mich., a Corporation of Michigan. A chromium plating bath including, when ready for operation, chlorochromate of soda, chromium chromate, hydrochloric acid, and water.

Heating Department

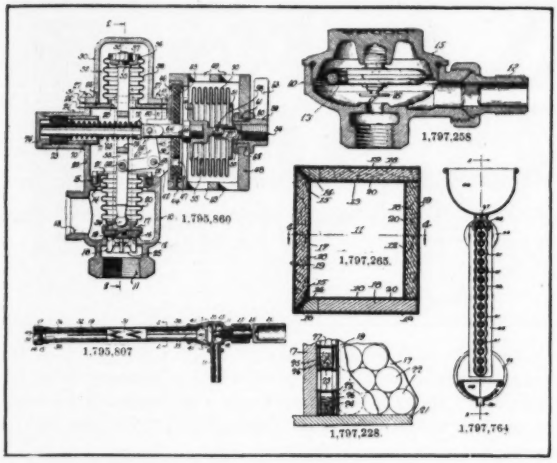
1,795,860. Temperature-Control-Valve Mechanism. Frederick W. Jaeger, Milwaukee, Wis.

1,797,258. Steam Trap. David N. Crosthwait, Jr., Marshalltown, Iowa, and Clayton A. Dunham, Glencoe, Ill., assignors to C. A. Dunham Company, Marshalltown, Iowa, a Corporation of Iowa.

1,797,265. Insulating Wall Structure. Paul E. Klopsteg, Chicago, Ill., assignor to Central Scientific Company, Chicago, Ill., a Corporation of Illinois.

1,795,807. Nozzle. Charles M. Terry, Decatur, Ill., assignor to A. W. Cash Company, Decatur, Ill., a Corporation of Delaware.

1,797,228. Heat Insulation. Charles F. Fitter, Greenwich, Conn.



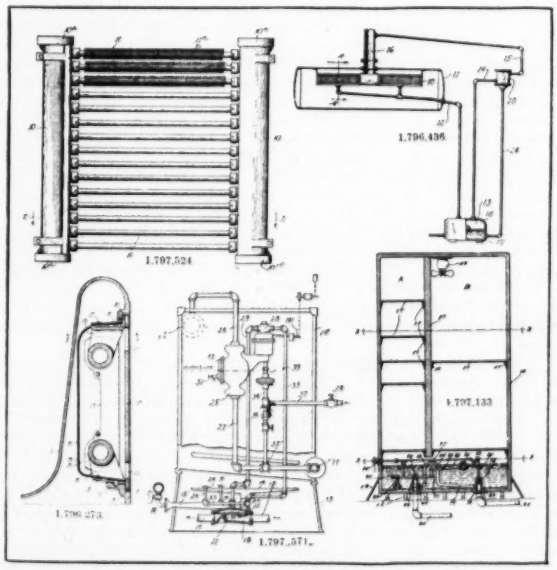
1,797,764. Refrigeration. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan.

1,797,524. Radiator Construction. Lawrence P. Dwyer, Chicago, Ill., assignor to C. A. Dunham Company, Marshalltown, Iowa, a Corporation of Iowa.

1,796,436. Purifier in Drain Vent Pipes, in Connection with a Steam Boiler System. Grant D. Bradshaw, Pittsburgh, Pa., assignor to Blaw-Knox Company, Blawnox, Pa., a Corporation of New Jersey.

1,796,273. Radiator Mounting. John H. Sutter, Chicago, and George L. Cadenhead, Evanston, Ill.

1,797,571. Thermostatic Control System for Boilers. Otto Fox, Cleveland, and Willet E. Stark, East Cleveland, Ohio, assignors to The Bryant Heater and Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio.



1,797,133. Automatic Water-Cooled Refrigerator. William Doherty, West Philadelphia, Pa.

1,797,246. Radiator-Box Damper. Clarence C. Shipp, Indianapolis, Ind.

1,797,151. Expansion Joint. Lyman L. Lord, Boston, Mass., assignor to E. B. Badger & Sons Company, Boston, Mass., a Corporation of Massachusetts.

LEONARD Thermostatic Water Mixing Valves have long been leaders and the New Type L-9 shown will enable you to install this valve in an entirely new field. Its beauty fits into the larger more elaborate home or club where appearance as well as quality must be considered.

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LEONARD-ROOKE COMPANY
Elmwood Station **Providence, R. I.**

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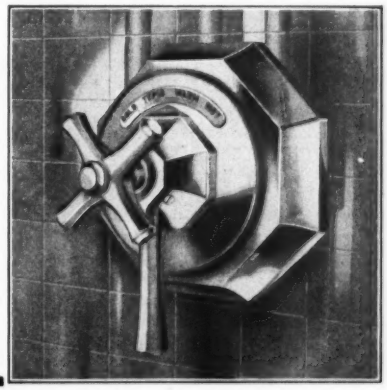

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No doubt you have. Chances are they are laying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you *dollars* if advertised in the For Sale columns of DOMESTIC ENGINEERING. Some plumber in some other locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8 cents per word makes the Classified Page a good buy.

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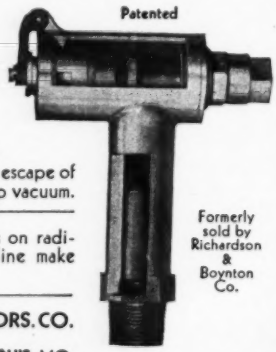

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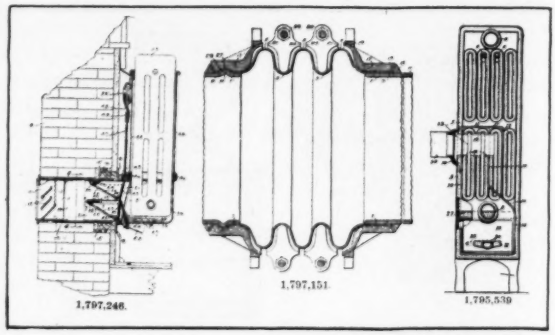

1,795,539. Gas Steam Radiator, with a Plurality of Radiator Sections with Passageways for a Heating Medium. George W. Blackmore, Pittsburgh, Pa., assignor to Automatic Gas Steam Radiator Company, Pittsburgh, Pa., a Corporation of Pennsylvania.

◆

Statement of Ownership and Management of "Domestic Engineering" for April 1, 1931

The following is a statement of ownership, management, etc., as required by the Act of Congress of August 24, 1912, of "Domestic Engineering," published bi-weekly at Chicago, Illinois, for April, 1931.

State of Illinois, County of Cook, ss.: Before me, a Notary Public in and for the state and county aforesaid, personally appeared F. P. Keeney, who, having been duly sworn according to law, deposes and says that he is the editor of "Domestic Engineering," and that the following is, to the best of his knowledge and belief, a true statement of the ownership and management of the aforesaid publication, for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Engineering Publications, Inc., Chicago, Illinois.
Editor, F. P. Keeney, Chicago, Illinois.
Managing Editor, R. V. Sawhill, Chicago, Illinois.
Business Manager, D. J. Hansen, Chicago, Illinois.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Engineering Publications, Inc., 1900 Prairie Avenue, Chicago, Illinois. Stockholders: F. P. Keeney, Chicago; O. T. Carson, Chicago; E. D. Winslow, New York City, N. Y.; R. Herlov, Chicago; C. L. Davis, Chicago; E. G. Hutchison, Chicago; R. Payne Wettstein, Pittsburgh, Pa.; W. J. Osborn, Fairfield, Conn.; F. S. King, Chicago; D. J. Hansen, Chicago.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

F. P. KEENEY,
Editor.

Sworn to and subscribed before me this 25th day of March, 1931.

L. M. DIXON,
Notary Public.

[My commission expires September 14, 1934.]
(SEAL)

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

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One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

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BOILER AND RADIATOR MANUFACturer wishes to make arrangements with commission men covering sale of heating materials in Tennessee and Kentucky. Give qualifications and sales experience in replying. Address Key 614, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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YOUNG MAN, AGE 32, WITH HIGH school and college training; 9 years' experience in all phases of heating and plumbing work; has done engineering work on plumbing and heating, such as making layouts, detailing, ordering material and estimating. Good references; salary open. Address Key 600, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

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WANTED TO BUY—ONE NUMBER 1000-M Toledo Pipe Machine. Must be in guaranteed good condition and cheap for cash. Address Shaw Gas & Plumbing Company, Little Rock, Arkansas.

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ESTABLISHED OIL BURNER DEALers wanted. Stop paying high prices for burners. If you are an experienced and responsible dealer we have a proposition that will interest you. Our burner is not a "Midget" or a cheap job, but is one of the most rugged, reliable and best looking burners on the market. If you want an outstanding burner at an exceptional price, write today. FARGO FOUNDRY COMPANY, Fargo, North Dakota.

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MANUFACTURERS' REPRESENTAtive well acquainted with Architects, Jobbers, Plumbers in Eastern Ohio, desires additional plumbing account of established merit. References. Address Key 610, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

WANTED—MANUFACTURERS' LINES to sell direct to plumbing and Heating contractors in Milwaukee and vicinity. Have a selling acquaintance with all the best buyers. Address Key 609, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Government Proposals

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., April 10, 1931.—Sealed bids in duplicate subject to the conditions contained herein will be publicly opened in this office at 3 p.m., May 8, 1931, for furnishing all labor and materials and performing all work for lawn sprinkler system at the United States post office and court house, Boise, Idaho. The prevailing rate of wage scale shall be paid all laborers and mechanics employed on the project as provided in the Act of March 3, 1931, (Public No. 798). Drawings and specifications may be obtained from the custodian at the building or at this office in the discretion of the supervising architect, Jas. A. Wetmore, Acting Supervising Architect.

Use this page to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

For Sale

FOR SALE—FIN TUBE RADIATOR Business. Product developed and perfected by nationally known manufacturer. Several hundred units in successful operation. Marketability proven. Complete equipment for all sizes of cabinet and concealed radiation available at extremely low price. Includes patterns, dies, machinery and sales literature. For particulars address Key 613, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE: MY HOME AND PLUMBing and Heating Shop, located at Elgin, Illinois, 37 miles west of Chicago, situated on four hard roads, four railroads. Population 50,000. Yearly average sales $100,000.00. Retiring. Address Key 612, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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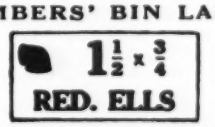
FOR SALE—PLUMBING AND HEATing business with building in Northern New Jersey. Good location and always have plenty of work. Address Key 616, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Miscellaneous

PLUMBERS' BIN LABELS



Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Hadden Bin Label Co., Haddon Heights, N. J.

LETTER HEADS, BILL HEADS, JOB TICKETS, TIME SHEETS, ETC., FOR PLUMBERS

Reasonable prices; quick service. Send for samples. LOUIS FINK & SONS COMPANY, School Building, Laurel Springs, New Jersey.

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JOHNSON'S HANDY MANUAL ON HEATING, VENTILATING AND REFRIGERATION. By John W. Johnson. The author is a practical plumbing and heating man, having spent many years in workshops and has superintended the installation of plumbing and heating systems of all descriptions. Thirteen editions of this popular book have been exhausted. The fourteenth is just off the press. Size 4x6¾. Cloth. Price, $1.50 per volume.

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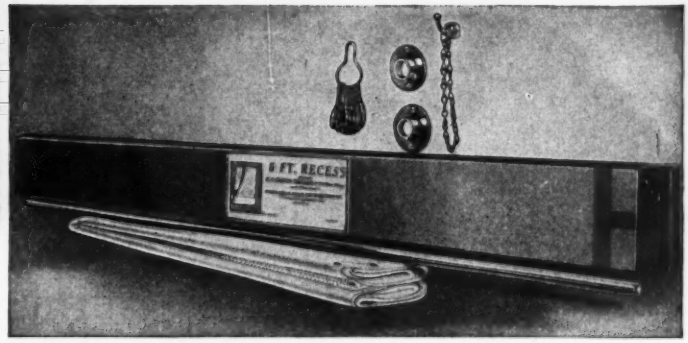

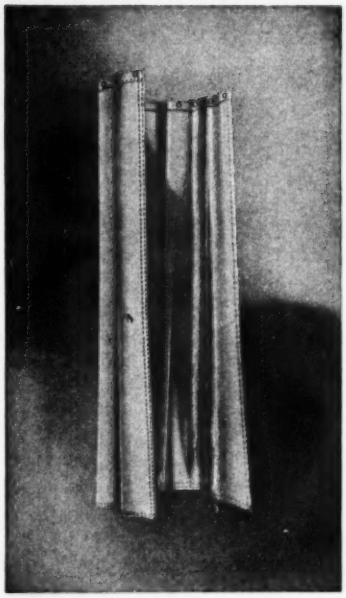

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WISECO QUALITY CURTAINS
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PINS AND HOLDBACKS

Nickel Plated or Chromium

Complete in One Package

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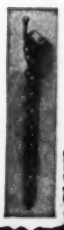

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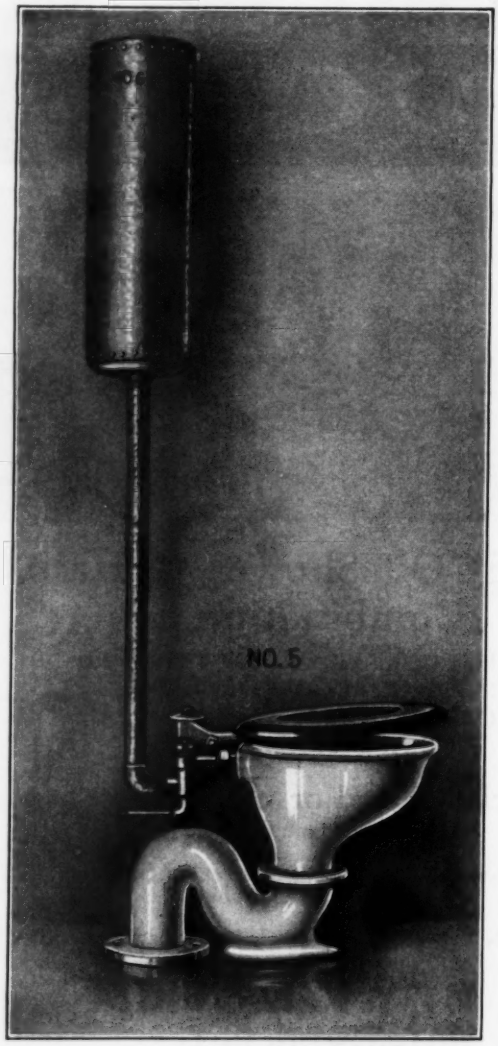

Vogel Number Five
Factory Closet

See inside front page for VOGEL Frost-Proof advertisement

. . . *here it is*

THE VOGEL PATENTED NUMBER FIVE

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You can't beat the VOGEL Number Five for an installation that is going to receive real hard usage . . . and where your customer is anxious to keep the cost down.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware St. Louis, Mo.

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